gizmoball.base

Class Ball

```
java.lang.Object
  └ gizmoball.base.Ball
```

All Implemented Interfaces:

GameItem, GameXMLWriter, java.awt.image.ImageObserver

```
public class Ballextends java.lang.Objectimplements GameItem, GameXMLWriter, java.awt.image.ImageObserver
```

The Ball class represents a mutable ball on a gizmoball game board. Every Ball has a name, an initial position and velocity as well as a run-mode position and velocity. Balls are either in play or out of play. The position and velocity of an out of play ball is not modified by a call to update(). By default Balls are in play.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Specification Fields

- `[double, double]` [xPosition, yPosition]
- `[double, double]` [xVelocity, yVelocity]
- `[double, double]` [xPositionInit, yPositionInit]
- `[double, double]` [xVelocityInit, yVelocityInit]
- `String` name
- `boolean` isInPlay
- `boolean` isGhost Abstraction Function: xPosition = this.x yPosition = this.y xPositionInit = this.initX yPositionInit = this.initY name = this.name isInPlay = this.inPlay isGhost = x.isGhostball Representation Invariant: name != null

---

Field Summary

static double	**BALL_RADIUS_L** The radius of the ball, in units of sectors.

Fields inherited from interface java.awt.image.ImageObserver
ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH

Constructor Summary

Ball(java.lang.String name, double initX, double initY, double initVX, double initVY, boolean ghost) Create a new Ball.

Method Summary

boolean	**collide**(Ball other, double secs) Handle a collision between two Balls.
double	**collisionTime**(Ball other) Determine the time until two Balls collide.
boolean	**containsPoint**(double px, double py) Returns whether or not the ball contains the given point (px, py) (measured in L).
void	**draw**(java.awt.Graphics2D g) Draw the Ball.
void	**drawBB**(java.awt.Graphics2D g, java.awt.Color c) Highlight this Ball with a bounding box.
boolean	**equals**(java.lang.Object other) Equality is based only on name.
physics.Circle	**getCircle**() Returns a new Circle representing the boundary of the Ball.
java.lang.String	**getName**() Get this Ball's name.
physics.Vect	**getPosition**() Get the position of this Ball.
java.lang.Iterable<BoardSector>	**getSectors**() Gets an Iterator of the BoardSectors this Ball is over.
physics.Vect	**getVelocity**() Get this Ball's velocity.
double	**getVX**() Get this Ball's horizontal velocity.

double	**getVY**() Get this Ball's vertical velocity.
double	**getX**() Get this Ball's x position.
double	**getY**() Get this Ball's y position.
int	**hashCode**() Hash code is based only on name.
boolean	**imageUpdate**(java.awt.Image i, int arg0, int arg1, int arg2, int arg3, int arg4)
boolean	**isGhostball**() See if this Ball is a ghostball.
boolean	**isInPlay**() Query whether this Ball is in play in run mode.
boolean	**overSector**(int sectorX, int sectorY) Checks if any part of this ball is over the sector at (sectorX,sectorY).
void	**reset**() Reset the position and velocity of this Ball to their initial values.
void	**savePosition**() Set this as the initial position.
void	**setGhost**(boolean isGhost) Set whether or not this Ball is a ghostball.
void	**setInititalPosition**(double newVX, double newVY) Set this Ball's initial (but not current) position to (newVX, newVY).
void	**setInPlay**(boolean inPlay) Set whether this Ball is in play in run mode.
void	**setName**(java.lang.String newName) Set this Ball's name to newName
void	**setPosition**(double x, double y) Move the Ball.
void	**setVelocity**(double vx, double vy) Set this Ball's velocity.

void	**setVelocity**(physics.Vect v) Sets the velocity of this Ball to v
org.w3c.dom.Element	**toXML**(boolean compatible) Create an XML representation of a Ball.
void	**update**(double secs, Environment env) Update the state of this Ball.
void	**updatePosition**(double secs) Update the position this Ball.

Methods inherited from class java.lang.Object
getClass, notify, notifyAll, toString, wait, wait, wait

Field Detail

BALL_RADIUS_L

```
public static final double BALL_RADIUS_L
```

The radius of the ball, in units of sectors.

See Also:
Constant Field Values

Constructor Detail

Ball

```
public Ball(java.lang.String name,
            double initX,
            double initY,
            double initVX,
            double initVY,
            boolean ghost)
```

Create a new Ball.

Throws:
java.lang.IllegalArgumentException - if name == null.

Effects:
Creates a Ball named `name` with initial coordinates (`initX`,`initY`)

Returns:
the newly created Ball.

Method Detail

isGhostball

```
public boolean isGhostball()
```

See if this Ball is a ghostball.

Returns:
True if this is a ghostball.

---

getName

```
public java.lang.String getName()
```

Get this Ball's name.

Specified by:
`getName` in interface `GameItem`

Returns:
the name of this Ball.

---

update

```
public void update(double secs,
                   Environment env)
```

Update the state of this Ball.

Specified by:
`update` in interface `GameItem`

Effects:
If the ball is in play, calculate a velocity for this Ball using the previous velocity, the number of seconds `secs` that have elapsed, and the physical environment `env`. Otherwise do nothing.

Modifies:
this

---

updatePosition

```
public void updatePosition(double secs)
```

Update the position this Ball.

Effects:
If the Ball is in play, then calculates a position for this Ball using the current velocity and the number of seconds `secs` that have elapsed, otherwise does nothing.
Modifies:
this

---

setInPlay

```
public void setInPlay(boolean inPlay)
```

Set whether this Ball is in play in run mode.

Effects:
if `inPlay` then ensures this ball is in play, else ensures this ball is not in play.

---

isInPlay

```
public boolean isInPlay()
```

Query whether this Ball is in play in run mode.

Returns:
true if this Ball is in play, false otherwise.

---

reset

```
public void reset()
```

Reset the position and velocity of this Ball to their initial values.

Specified by:
`reset` in interface `GameItem`
Effects:
newthis.position = (this.initX,this.initY), newthis.velocity = (this.initVX,this.initVY).
Modifies:
this

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Draw the Ball.

Specified by:
`draw` in interface `GameItem`
Effects:
Draws a gizmoball using `g` based on the current run-mode position and velocity.
Modifies:
g

---

drawBB

```
public void drawBB(java.awt.Graphics2D g,
                   java.awt.Color c)
```

Highlight this Ball with a bounding box.

Specified by:
`drawBB` in interface `GameItem`
Effects:
Draws the bounding box of this game item using `g`.
Modifies:
`g`.

---

getX

```
public double getX()
```

Get this Ball's x position.

Returns:
this.position.x

---

getY

```
public double getY()
```

Get this Ball's y position.

Returns:
this.position.y

savePosition

```
public void savePosition()
```

Set this as the initial position. Saves the current position as the initial position.

---

setPosition

```
public void setPosition(double x,
                        double y)
```

Move the Ball.

Effects:
Sets the position of this Ball to (x,y).
Modifies:
this

---

getPosition

```
public physics.Vect getPosition()
```

Get the position of this Ball.

Returns:
a Vect containing the position of the center of the ball.

---

getVX

```
public double getVX()
```

Get this Ball's horizontal velocity.

Returns:
this.velocity.x

---

getVY

```
public double getVY()
```

Get this Ball's vertical velocity.

Returns:
this.velocity.y

getVelocity

```
public physics.Vect getVelocity()
```

Get this Ball's velocity.

Returns:
a Vect of this.velocity

---

setVelocity

```
public void setVelocity(physics.Vect v)
```

Sets the velocity of this Ball to `v`

Modifies:
this

---

setVelocity

```
public void setVelocity(double vx,
                        double vy)
```

Set this Ball's velocity.

Effects:
Sets the velocity of this Ball to (vx,vy).
Modifies:
this

---

overSector

```
public boolean overSector(int sectorX,
                          int sectorY)
```

Checks if any part of this ball is over the sector at (`sectorX`,`sectorY`).

Specified by:
`overSector` in interface `GameItem`
Returns:
true if |this.position.x - sectorX| < 1 && |this.position.y - sectorY| < 1 false otherwise.

---

getSectors

```
public java.lang.Iterable<BoardSector> getSectors()
```

Gets an Iterator of the BoardSectors this Ball is over.

Specified by:
`getSectors` in interface `GameItem`

Returns:
all BoardSectors s | this.overSector(s.x, s.y) == true

---

containsPoint

```
public boolean containsPoint(double px,
                             double py)
```

Returns whether or not the ball contains the given point `(px, py)` (measured in L).

Returns:
True if sqrt(this.x ^ 2 + this.y ^ 2) <= this.BALL_RADIUS_L

---

getCircle

```
public physics.Circle getCircle()
```

Returns a new Circle representing the boundary of the Ball.

Returns:
a circle centered at (x, y) with radius BALL_RADIUS_L

---

collisionTime

```
public double collisionTime(Ball other)
```

Determine the time until two Balls collide.

Throws:
`java.lang.IllegalArgumentException` - if `other` is null.

Returns:
The number of seconds until `other` collides with this Ball if they will collide, Double.POSITIVE_INFINITY otherwise.

---

collide

```
public boolean collide(Ball other,
                       double secs)
```

Handle a collision between two Balls.

Throws:
`java.lang.IllegalArgumentException` - if other == null
Effects:
if willCollide(other, secs) then update the velocity of this and other.
Modifies:
this, other
Returns:
willCollide(other, msecs)

---

toXML

```
public org.w3c.dom.Element toXML(boolean compatible)
```

Create an XML representation of a Ball. The XML returned is a well-formed node.

Specified by:
`toXML` in interface `GameXMLWriter`
Parameters:
`compatible` - Be strictly compatible with 6.170 schema
Returns:
the XML.

---

imageUpdate

```
public boolean imageUpdate(java.awt.Image i,
                           int arg0,
                           int arg1,
                           int arg2,
                           int arg3,
                           int arg4)
```

Specified by:
`imageUpdate` in interface `java.awt.image.ImageObserver`

---

equals

```
public boolean equals(java.lang.Object other)
```

Equality is based only on name.

Overrides:
`equals` in class `java.lang.Object`
Returns:
True if this.name == `other`.name

---

hashCode

```
public int hashCode()
```

Hash code is based only on name.

Overrides:
`hashCode` in class `java.lang.Object`
Returns:
This Ball's hashCode.

---

setInititalPosition

```
public void setInititalPosition(double newVX,
                                double newVY)
```

Set this Ball's initial (but not current) position to `(newVX, newVY)`.

Modifies:
this.xPositionInit, this.yPositionInit

---

setGhost

```
public void setGhost(boolean isGhost)
```

Set whether or not this Ball is a ghostball.

Parameters:
`isGhost` - - True if this Ball is a ghostball
Effects:
this.isGhostball = isGhost

---

setName

```
public void setName(java.lang.String newName)
```

Set this Ball's name to `newName`

Effects:
this.name = newName

---

gizmoball.base

Class BoardSector

```
java.lang.Object
  └ gizmoball.base.BoardSector
```

```
public class BoardSectorextends java.lang.Object
```

BoardSector is an immutable class representing one sector of a gizmoball game board.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Specification Fields

- `position.x`
- `position.y`

  AF

  > position.x = this.x

  > position.y = this.y

Field Summary

`static int`	**`SECTOR_SIZE`** BoardSector size in pixels

Constructor Summary

`BoardSector``(int x, int y)` Create a new BoardSector.	

Method Summary

boolean	**equals**(java.lang.Object o) Determine if this BoardSector is equal to the object o.
int	**getX**() Get the x coordinate of this BoardSector.
int	**getY**() Get the y coordinate of this BoardSector.
int	**hashCode**() Get a hash code for this BoardSector.
java.lang.String	**toString**() Get a string representing this BoardSector.

Methods inherited from class java.lang.Object

getClass, notify, notifyAll, wait, wait, wait

Field Detail

SECTOR_SIZE

```
public static final int SECTOR_SIZE
```

BoardSector size in pixels

See Also:
Constant Field Values

Constructor Detail

BoardSector

```
public BoardSector(int x,
                   int y)
```

Create a new BoardSector. The created BoardSector will have position (x,y).

Returns:
the new BoardSector.

Method Detail

getX

```
public int getX()
```

Get the x coordinate of this BoardSector.

Returns:
position.x

---

getY

```
public int getY()
```

Get the y coordinate of this BoardSector.

Returns:
position.y

---

toString

```
public java.lang.String toString()
```

Get a string representing this BoardSector.

Overrides:
`toString` in class `java.lang.Object`
Returns:
A String of the form "(position.x,position.y)".

---

equals

```
public boolean equals(java.lang.Object o)
```

Determine if this BoardSector is equal to the object `o`.

Overrides:
`equals` in class `java.lang.Object`
Returns:
true if and only if `o` is a BoardSector and position == `o`.position.

---

hashCode

```
public int hashCode()
```

Get a hash code for this BoardSector.

Overrides:

`hashCode` in class `java.lang.Object`

Returns:

a hash code in accordance with the object contract.

---

gizmoball.base

Class Environment

```
java.lang.Object
  └ gizmoball.base.Environment
```

All Implemented Interfaces:

GameXMLWriter

```
public class Environmentextends java.lang.Objectimplements GameXMLWriter
```

The Environment class represents the mutable physical environment during a game of gizmoball. The environment includes the gravity and friction at each point of the game board. An Environment can be modified by adding EnvironmentModifiers to it.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

See Also:

`EnvironmentModifier`

Specification Fields

- `gravity`
- `timeMu`
- `distanceMu`
- `modifiers`

AF

> gravity = (this.gx, this.gy)
> timeMu = this.mu1
> distanceMu = this.mu2 <p>

Constructor Summary

Environment(double gx, double gy, double mu1, double mu2) Create a new Environment.

Method Summary

void	**addModifier**(EnvironmentModifier mod) Add an environmental modifier.
void	**draw**(java.awt.Graphics2D g) Draw an Environment.
double	**getGX**(double x, double y) Get the x component of the constant gravitational acceleration.
double	**getGY**(double x, double y) Get the y component of the constant gravitational acceleration.
double	**getMu1**(double x, double y) Get the constant time-proportional coefficient of friction timeMu.
double	**getMu2**(double x, double y) Get the constant distance-proportional coefficient of friction distanceMu.
void	**reset**() Reset the internal state of an Environment.
void	**setGravity**(double gx, double gy) Set the constant gravitational acceleration.
void	**setMu1**(double mu1) Sets the time-proportional coefficeint of friction timeMu.
void	**setMu2**(double mu2) Sets the distance-proportional coefficient of friction distanceMu.
org.w3c.dom.Element	**toXML**(boolean compatible) Get an XML node for the board corresponding to an Environment.
void	**update**(double secs) Updates the state of the environment.

Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

Environment

```
public Environment(double gx,
                   double gy,
                   double mu1,
                   double mu2)
```

Create a new Environment. The created Environment will haveconstant gravitational acceleration (gx,gy) and coefficients of friction mu1 and mu2. The new Environment will have no modifiers.

Returns:
the new Environment.

Method Detail

setGravity

```
public void setGravity(double gx,
                       double gy)
```

Set the constant gravitational acceleration.

Effects:
newthis.gravity == (gx,gy).
Modifies:
this.

---

setMu1

```
public void setMu1(double mu1)
```

Sets the time-proportional coefficeint of friction timeMu.

Effects:
newthis.timeMu == mu1.
Modifies:
this.

---

setMu2

```
public void setMu2(double mu2)
```

Sets the distance-proportional coefficient of friction distanceMu.

Effects:
newthis.distanceMu == mu2.

Modifies:
this.

---

getGX

```
public double getGX(double x,
                    double y)
```

Get the x component of the constant gravitational acceleration.

Returns:
gravity.x.

---

getGY

```
public double getGY(double x,
                    double y)
```

Get the y component of the constant gravitational acceleration.

Returns:
gravity.y.

---

getMu1

```
public double getMu1(double x,
                     double y)
```

Get the constant time-proportional coefficient of friction timeMu.

Returns:
timeMu.

---

getMu2

```
public double getMu2(double x,
                     double y)
```

Get the constant distance-proportional coefficient of friction distanceMu.

Returns:
distanceMu.

---

addModifier

```
public void addModifier(EnvironmentModifier mod)
```

Add an environmental modifier.

Effects:
newthis.modifiers = this.modifiers + `mod`.
Modifies:
this, `mod`.

---

update

```
public void update(double secs)
```

Updates the state of the environment.

Effects:
updates this environment modifier for `secs` seconds.
Modifies:
this.

---

reset

```
public void reset()
```

Reset the internal state of an Environment.

Effects:
resets this Environment.
Modifies:
this.

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Draw an Environment. Draws all EnvironmentModifiers in the Environment as well.

Effects:
draws this Environment using `g`.
Modifies:
`g`.

toXML

```
public org.w3c.dom.Element toXML(boolean compatible)
```

Get an XML node for the board corresponding to an Environment.

Specified by:
`toXML` in interface `GameXMLWriter`
Parameters:
`compatible` - Be strictly compatible with 6.170 schema
Returns:
the node.

gizmoball.base

Class EnvironmentModifier

```
java.lang.Object
  └ gizmoball.base.EnvironmentModifier
```

Direct Known Subclasses:

Shockwave

```
public abstract class EnvironmentModifierextends java.lang.Object
```

An EnvironmentModifier is a mutable class that allows a time or space dependent effect to be added to an Environment object.

To allow chaining, each EnvironmentModifier may have a parent EnvironmentModifier. The values returned for the parameters of the environment may depend upon those returned by the parent.

EnvironmentModifiers can expire. An expired EnvironmentModifier always transparently returns the environment parameters returned by its parent, or 0 if it has no parent.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

See Also:

`Environment`

Specification Fields :

`parent`

AF

> parent = this.parent <p>

Constructor Summary

`EnvironmentModifier``()`	

Method Summary

void	**draw**(java.awt.Graphics2D g) Draw an EnvironmentModifier.
abstract double	**getGX**(double x, double y) Get the x component of gravity at a point.
abstract double	**getGY**(double x, double y) Get the y component of gravity at a point.
abstract double	**getMu1**(double x, double y) Get the time-proportional coefficient of friction at a point.
abstract double	**getMu2**(double x, double y) Get the distance-proportional coefficient of friction at a point.
boolean	**isExpired**() Check if an EnvironmentModifier is expired.
void	**setParent**(EnvironmentModifier parent) Set the parent of this EnvironmentModifier.
void	**update**(double secs) Update an EnvironmentModifier's internal state.

Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

EnvironmentModifier

public **EnvironmentModifier**()

Method Detail

setParent

```
public void setParent(EnvironmentModifier parent)
```

Set the parent of this EnvironmentModifier.

Effects:
newThis.parent == `parent`.
Modifies:
this.

---

update

```
public void update(double secs)
```

Update an EnvironmentModifier's internal state.

Effects:
update this EnvironmentModifier for `secs` seconds. Does nothing unless overridden.
Modifies:
this.

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Draw an EnvironmentModifier.

Effects:
draws this EnvironmentModifier using `g`. Does nothing unless overridden.
Modifies:
this,`g`.

---

isExpired

```
public boolean isExpired()
```

Check if an EnvironmentModifier is expired.

Returns:
true iff this EnvironmentModifier is expired. Always true unless overridden.

---

getGX

```
public abstract double getGX(double x,
                             double y)
```

Get the x component of gravity at a point.

Returns:
The x component of the gravitation acceleration at (x,y).

---

getGY

```
public abstract double getGY(double x,
                             double y)
```

Get the y component of gravity at a point.

Returns:
The y component of the gravitation acceleration at (x,y).

---

getMu1

```
public abstract double getMu1(double x,
                              double y)
```

Get the time-proportional coefficient of friction at a point.

Returns:
The coefficient of friction mu1 at (x,y).

---

getMu2

```
public abstract double getMu2(double x,
                              double y)
```

Get the distance-proportional coefficient of friction at a point.

Returns:
The coefficient of friction mu2 at (x,y).

---

gizmoball.base

Class GameEvent

```
java.lang.Object
  └ gizmoball.base.GameEvent
```

```
public class GameEventextends java.lang.Object
```

The GameEvent class represents an immutable special event that can occur in a game of gizmoball. The event types are represented by public contstants in this class. A GameEvent may have a parameter string. The format of the parameter string depends on the type of event. Event types and parameter string formats:

SHOCKWAVE - creates a gravitational shockwave parameter string: "[x] [y] [amplitude] [speed] [width]".
> (x, y) (double): center of the shockwave.
> amplitude (double): the outward component to be added to gravity.
> speed (double): the speed at which the shockwave expands.
> width (double): the width of the shockwave.
> All values use units of sectors and seconds. <p>

Author:
David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

See Also:
`Gizmo.eventWaiting()`, `Gizmo.popEvent()`

Specification Fields

- `eventType`
- `parameterString`

  AF
  > eventType = this.eventType
  > parameterString = this.eventParam
  > <p>

  RI
  > for some x in {this.SHOCKWAVE} eventType = x <p>

Field Summary

static int	**SHOCKWAVE** Constant signifying a shockwave event.

Constructor Summary

GameEvent(int type, java.lang.String param) Create a new GameEvent The created GameEvent will be of type `type` with the parameter string `param`.

Method Summary

java.lang.String	**getParameters**() Get the parameter string of a GameEvent.
int	**getType**() Get the type of a GameEvent.

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Field Detail

SHOCKWAVE

public static final int **SHOCKWAVE**

Constant signifying a shockwave event.

See Also:
Constant Field Values

Constructor Detail

GameEvent

```
public GameEvent(int type,
                 java.lang.String param)
```

Create a new GameEvent The created GameEvent will be of type `type` with the parameter string `param`.

Returns:
the new GameEvent.

Method Detail

getType

```
public int getType()
```

Get the type of a GameEvent.

Returns:
eventType for this GameEvent.

---

getParameters

```
public java.lang.String getParameters()
```

Get the parameter string of a GameEvent.

Returns:
parameterString for this GameEvent.

---

gizmoball.base

Interface GameItem

All Known Implementing Classes:

Absorber, Ball, BasicGizmo, BreakawaySquareBumper, CircleBumper, Extender, Flipper, Gizmo, LeftFlipper, OuterWalls, RightFlipper, Shocker, SquareBumper, TriangleBumper

---

```
public interface GameItem
```

A GameItem is an interface representing any element of a gizmoball game.

All GameItems have names, locations, and a list of associated gizmoball board sectors.

GameItems have internal state that can be updated a specified amount of time or reset. GameItems may also be drawn. How a GameItem is drawn may depend on its internal state.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Specification Fields

- `name`
- `location.x`
- `location.y`
- `sectors`

Method Summary

void	**draw**(java.awt.Graphics2D g) Draw a GameItem.
void	**drawBB**(java.awt.Graphics2D g, java.awt.Color c) Draw the bounding box of a GameItem.
java.lang.String	**getName**() Get the name of a GameItem.
java.lang.Iterable<BoardSector>	**getSectors**() Get all board sectors associated with a GameItem.
boolean	**overSector**(int sectorX, int sectorY) Check if a GameItem is associated with a board sector.
void	**reset**() Resets a GameItem.
void	**update**(double secs, Environment env) Update the state of a GameItem.

Method Detail

getName

```
java.lang.String getName()
```

Get the name of a GameItem.

Returns:
the name of this GameItem.

---

update

```
void update(double secs,
            Environment env)
```

Update the state of a GameItem.

Effects:
Increments the state of a GameItem for `secs` seconds in a physical environment described by `env`.

Modifies:
this.

---

reset

```
void reset()
```

Resets a GameItem.

Effects:
Resets all internal state of a game item.
Modifies:
this.

---

draw

```
void draw(java.awt.Graphics2D g)
```

Draw a GameItem.

Effects:
Draws this GameItem using `g`.
Modifies:
`g`.

---

drawBB

```
void drawBB(java.awt.Graphics2D g,
            java.awt.Color c)
```

Draw the bounding box of a GameItem.

Effects:
Draws the bounding box of this GameItem using `g` in the color `c`.
Modifies:
`g`.

---

overSector

```
boolean overSector(int sectorX,
                   int sectorY)
```

Check if a GameItem is associated with a board sector.

Returns:

true iff for some x in sectors x == (`sectorX`,`sectorY`).

---

getSectors

`java.lang.Iterable<BoardSector>` **`getSectors`**`()`

Get all board sectors associated with a GameItem.

Returns:

sectors

---

gizmoball.base
Interface GameXMLWriter

All Known Implementing Classes:
Absorber, Ball, BasicGizmo, BreakawaySquareBumper, CircleBumper, Environment, Extender, Flipper, Gizmo, LeftFlipper, Level, OuterWalls, RightFlipper, Shocker, SquareBumper, TriangleBumper

---

```
public interface GameXMLWriter
```

Classes implementing the GameXMLWriter interface provide methods to generate an XML representation of themselves.

Author:
David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Method Summary

org.w3c.dom.Element	**toXML**(boolean compatible) Create an XML representation of an object.

Method Detail

toXML

```
org.w3c.dom.Element toXML(boolean compatible)
```

Create an XML representation of an object. The XML returned is a well-formed node.

Parameters:
`compatible` - Be strictly compatible with 6.170 schema
Returns:
the XML.

gizmoball.base
Class Gizmo

```
java.lang.Object
  └ gizmoball.base.Gizmo
```

All Implemented Interfaces:
GameItem, GameXMLWriter

Direct Known Subclasses:
Absorber, BasicGizmo, Extender, Flipper, OuterWalls

```
public abstract class Gizmoextends java.lang.Objectimplements GameItem, GameXMLWriter
```

The Gizmo abstract class provides methods specific to gizmoball gizmos. Gizmos may interact with Ball objects, but not with eachother. A Gizmo is either activated or unactivated during run-mode. If update() is called on an activated Gizmo, it will perform it's associated action and set itself to unactivated. Gizmos will become actived after a collision with a ball. A Gizmo may have a number of target Gizmo. If a Gizmo collides with a Ball all of its targets must become activated. Abstraction Function: A gizmo has the following specfields

Author:
David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Specification Fields

- `name` = this.name
- `activated` = this.activated
- `targets` = this.targets
- `pressCodes` = this.pressCodes
- `releaseCodes` = this.releaseCodes Representation Invariant: name != null && targets != null && pressCodes != null && releaseCodes != null && all elements of pressCodes are unique && all elements of releaseCodes are unique

---

Method Summary	
`void`	**`addPressCode`**`(int keyCode)` Add a key which activates this Gizmo when pressed.
`void`	**`addReleaseCode`**`(int keyCode)` Add a key which activated this Gizmo when released.
`boolean`	**`addTarget`**`(Gizmo gizmo)` Add a target that this Gizmo activates upon being hit.

abstract boolean	**collide**(Ball b, double secs) Handle a collision between a Gizmo and Ball.
abstract double	**collisionTime**(Ball ball) Determine the time until a Gizmo and Ball collide.
boolean	**equals**(java.lang.Object other) Equality is based only on name.
boolean	**eventWaiting**() See if the Gizmo is waiting to act.
double	**getCenterX**() Gets the X value of the Center of the gizmo.
double	**getCenterY**() Gets the Y value of the Center of the gizmo.
java.lang.String	**getName**() Get this Gizmo's name.
int	**getOrientation**() Get the Gizmo orientation.
java.util.List<java.lang.Integer>	**getPressCodes**() Get all keys which activate this Gizmo on being pressed.
java.util.List<java.lang.String>	**getPropertyNames**() Get the names of a Gizmo's properties.
java.util.List<java.lang.String>	**getPropertyValues**() Get the values of a Gizmo's properties.
java.util.List<java.lang.Integer>	**getReleaseCodes**() Get all keys which activate this Gizmo on being released.
java.lang.Iterable<Gizmo>	**getTargets**() Get all targets of this Gizmo.
abstract double	**getX**() Get this Gizmo's x position.
abstract double	**getY**() Get this Gizmo's y position.
int	**hashCode**() Hash code is based only on name.
boolean	**hasTarget**(Gizmo gizmo) Tests to see whether gizmo is a target of this Gizmo
boolean	**isRotatable**() Whether or not the Gizmo's orientation can be changed.

void	**keyPressed**(int keyCode) Activate Gizmo if an appropriate key has been pressed.
void	**keyReleased**(int keyCode) Activate Gizmo if an appropriate key has been released.
abstract boolean	**overlapsWith**(Ball ball) Determine if a ball is overlapping with a gizmo.
abstract boolean	**overSector**(int sectorX, int sectorY) Check if a Gizmo is over a given board sector.
int	**pollScore**() Get the number of points scored since the previous call to PopScore() without changing the Gizmo.
GameEvent	**popEvent**() Get the an event waiting to be happen from the stack.
int	**popScore**() Get the number of points scored since the previous call to popScore(), and erase any record of those points.
void	**receiveTrigger**() Process a trigger event.
boolean	**removePressCode**(int keyCode) Remove a key that activated this Gizmo when pressed.
boolean	**removeReleaseCode**(int keyCode) Remove a key that activates this Gizmo when released.
boolean	**removeTarget**(Gizmo gizmo) Attempt to remove one of this Gizmo's targets.
void	**reset**() Resets a Gizmo.
void	**rotateCCW**() Rotates the Gizmo orientation by 90 counterclockwise.
void	**rotateCW**() Rotates the Gizmo orientation by 90 clockwise.
void	**setOrientation**(int degrees) Set the gizmo orientation.
abstract void	**setPosition**(int x, int y)
void	**setPropertyValues**(java.util.List<java.lang.String> values) Set the values of a Gizmo's properties.
void	**triggerTargets**() Trigger this Gizmo's targets.

void	**update**(double secs, Environment env) Update the state of a Gizmo.

Methods inherited from class java.lang.Object
getClass, notify, notifyAll, toString, wait, wait, wait

Methods inherited from interface gizmoball.base.GameItem
draw, drawBB, getSectors

Methods inherited from interface gizmoball.base.GameXMLWriter
toXML

Method Detail

getX

public abstract double **getX**()

Get this Gizmo's x position.

Returns:
X coordinate

---

getY

```
public abstract double getY()
```

Get this Gizmo's y position.

Returns:
Y coordinate

---

getCenterX

```
public double getCenterX()
```

Gets the X value of the Center of the gizmo. Expected to be overwritten by non 1Lx1L Gizmos to properly reflect gizmo size/shape.

Returns:
X coordinate of the center of this Gizmo

---

getCenterY

```
public double getCenterY()
```

Gets the Y value of the Center of the gizmo. Expected to be overwritten by non 1Lx1L Gizmos to properly reflect gizmo size/shape.

Returns:
Y coordinate of the center of this Gizmo

---

setPosition

```
public abstract void setPosition(int x,
                                 int y)
```

---

getName

```
public java.lang.String getName()
```

Get this Gizmo's name.

Specified by:
`getName` in interface `GameItem`
Returns:
the name of this Gizmo.

---

equals

```
public boolean equals(java.lang.Object other)
```

Equality is based only on name.

Overrides:
`equals` in class `java.lang.Object`
Returns:
True if these Gizmos have matching names.

---

hashCode

```
public int hashCode()
```

Hash code is based only on name.

Overrides:
`hashCode` in class `java.lang.Object`
Returns:
This Gizmo's hashCode.

---

reset

```
public void reset()
```

Resets a Gizmo.

Specified by:
`reset` in interface `GameItem`
Effects:
Resets all internal state.
Modifies:
this

---

update

```
public void update(double secs,
                   Environment env)
```

Update the state of a Gizmo.

Specified by:
`update` in interface `GameItem`

Effects:
Increments the state of a BasicGizmo for `secs` seconds in a physical environment described by `env`.

Modifies:
this.

---

overSector

```
public abstract boolean overSector(int sectorX,
                                   int sectorY)
```

Check if a Gizmo is over a given board sector.

Specified by:
`overSector` in interface `GameItem`

Returns:
if this Gizmo is over the sector at (sectorX, sectorY).

---

overlapsWith

```
public abstract boolean overlapsWith(Ball ball)
```

Determine if a ball is overlapping with a gizmo.

Returns:
true if `ball` overlaps with this gizmo. false otherwise.

---

collisionTime

```
public abstract double collisionTime(Ball ball)
```

Determine the time until a Gizmo and Ball collide.

Throws:
`java.lang.IllegalArgumentException` - if `ball` is null.

Returns:
The number of seconds until `ball` collides with this Gizmo if they will collide, Double.POSITIVE_INFINITY otherwise.

---

collide

```
public abstract boolean collide(Ball b,
                                double secs)
```

Handle a collision between a Gizmo and Ball.

Throws:
`java.lang.IllegalArgumentException` - if b == null
Effects:
if b will collide with g in `secs` seconds then make the Gizmo active, make the Gizmo's target (if any) active, set the reflected velocity of `b`.
Modifies:
this, b
Returns:
true if Ball `b` will collide with this gizmo in `msecs` seconds or less, false otherwise.

---

setOrientation

`public void **setOrientation**(int degrees)`

Set the gizmo orientation. By default, the only possible orientation is 0 degrees. Subclasses must override to provide functionality for other orientations.

Throws:
`java.lang.IllegalArgumentException` - if `degrees` is not a possible orientation for this gizmo.
See Also:
`getOrientation()`
Effects:
if `degrees` is a possible orientation then sets the orientation of this gizmo to `degrees`.
Modifies:
this.

---

getOrientation

`public int **getOrientation**()`

Get the Gizmo orientation. By default the orientation is always 0 degrees. Subclasses must override to provide other orientations.

See Also:
`setOrientation`
Returns:
the orientation of this gizmo.

---

isRotatable

`public boolean **isRotatable**()`

Whether or not the Gizmo's orientation can be changed. By default the value is always false. Subclasses must override the method in order to allow for rotation.

See Also:
`rotateCW, rotateCCW, setOrientation`
Returns:
whether or not the Gizmo can be rotated

---

rotateCW

`public void **rotateCW**()`

Rotates the Gizmo orientation by 90 clockwise. By default, the only possible orientation is 0 degrees. Subclasses must override to provide functionality for other orientations.

Throws:
`java.lang.IllegalArgumentException` - if the Gizmo cannot be rotated
See Also:
`setOrientation()`
Effects:
if the Gizmo can rotated, its orientation is augmented by 90
Modifies:
this.

---

rotateCCW

`public void **rotateCCW**()`

Rotates the Gizmo orientation by 90 counterclockwise. By default, the only possible orientation is 0 degrees. Subclasses must override to provide functionality for other orientations.

Throws:
`java.lang.IllegalArgumentException` - if the Gizmo cannot be rotated
See Also:
`setOrientation()`
Effects:
if the Gizmo can rotated, its orientation is augmented by 90
Modifies:
this.

receiveTrigger

```
public void receiveTrigger()
```

Process a trigger event.

Effects:
tells the Gizmo that it has been activated by receiving a trigger
Modifies:
this

---

pollScore

```
public int pollScore()
```

Get the number of points scored since the previous call to PopScore() without changing the Gizmo.

Returns:
the number of points scored on this gizmo since the last call to popScore().

---

popScore

```
public int popScore()
```

Get the number of points scored since the previous call to popScore(), and erase any record of those points.

Modifies:
this
Returns:
the number of points accumulated since the last call to popScore().

---

eventWaiting

```
public boolean eventWaiting()
```

See if the Gizmo is waiting to act.

Returns:
true if this Gizmo is waiting to initiate a game event, false otherwise.

---

popEvent

`public GameEvent popEvent()`

Get the an event waiting to be happen from the stack.

Effects:
If this Gizmo is waiting to initiate one or more game events, remove and return one such game event.

Returns:
If this.eventWaiting() then the event that has been removed, else null

---

addTarget

`public boolean addTarget(Gizmo gizmo)`

Add a target that this Gizmo activates upon being hit.

Throws:
`java.lang.IllegalArgumentException` - if `gizmo` == null

Effects:
if `gizmo` != null then makes `gizmo` a target of this Gizmo.

Modifies:
this

Returns:
True if succesful.

---

removeTarget

`public boolean removeTarget(Gizmo gizmo)`

Attempt to remove one of this Gizmo's targets. This former target will no longer be activated when this Gizmo is hit.

Throws:
`java.lang.IllegalArgumentException` - if `gizmo` == null

Effects:
if gizmo != null and `gizmo` is currently a target of this Gizmo, then makes `gizmo` not a target of this Gizmo,

Modifies:
this

Returns:
true if `gizmo` was originally a target of this Gizmo, false otherwise.

hasTarget

`public boolean **hasTarget**(Gizmo gizmo)`

Tests to see whether `gizmo` is a target of this Gizmo

Parameters:
`gizmo` - The Gizmo being tested to see if it is a target
Returns:
True if this Gizmo contains `gizmo` as a target, false if otherwise

---

getTargets

`public java.lang.Iterable<Gizmo> **getTargets**()`

Get all targets of this Gizmo.

Returns:
{x | x is a target of this Gizmo}

---

triggerTargets

`public void **triggerTargets**()`

Trigger this Gizmo's targets.

Effects:
All targets of this Gizmo become activated.

---

getPressCodes

`public java.util.List<java.lang.Integer> **getPressCodes**()`

Get all keys which activate this Gizmo on being pressed.

Returns:
the key codes of all keys that activate this Gizmo after being pressed.

---

getReleaseCodes

`public java.util.List<java.lang.Integer> **getReleaseCodes**()`

Get all keys which activate this Gizmo on being released.

Returns:
the key codes of all keys that activate this Gizmo after being released.

---

addPressCode

```
public void addPressCode(int keyCode)
```

Add a key which activates this Gizmo when pressed.

Effects:
ensures that this Gizmo is activated after the key `keyCode` is pressed.

---

addReleaseCode

```
public void addReleaseCode(int keyCode)
```

Add a key which activated this Gizmo when released.

Effects:
ensures that this Gizmo is activated after the key `keyCode` is released.

---

removePressCode

```
public boolean removePressCode(int keyCode)
```

Remove a key that activated this Gizmo when pressed.

Effects:
ensures that this Gizmo is not activated after the key `keyCode` is pressed.
Returns:
if a connection was removed.

---

removeReleaseCode

```
public boolean removeReleaseCode(int keyCode)
```

Remove a key that activates this Gizmo when released.

Effects:
ensures that this Gizmo is not activated after the key `keyCode` is released.
Returns:
True if a connection was removed.

keyPressed

```
public void keyPressed(int keyCode)
```

Activate Gizmo if an appropriate key has been pressed.

Effects:
if addPressCode() has been called for `keyCode` and removePressCode() hasn't, activates this Gizmo.

---

keyReleased

```
public void keyReleased(int keyCode)
```

Activate Gizmo if an appropriate key has been released.

Effects:
if addReleaseCode() has been called for `keyCode` and removeReleaseCode() hasn't, activates this Gizmo.

---

getPropertyNames

```
public java.util.List<java.lang.String> getPropertyNames()
```

Get the names of a Gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Returns:
an ordered list of property names.

---

getPropertyValues

```
public java.util.List<java.lang.String> getPropertyValues()
```

Get the values of a Gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Returns:
an ordered list of property values as Strings.

---

setPropertyValues

```
public void setPropertyValues(java.util.List<java.lang.String> values)
                       throws GizmoPropertyException
```

Set the values of a Gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Throws:

`java.lang.IllegalArgumentException` - if the size of `values` does not match the size of the list returned by getPropertyNames().

`GizmoPropertyException`

Modifies:

this

---

gizmoball.base

Class GizmoGame

```
java.lang.Object
  └ gizmoball.base.GizmoGame
```

```
public class GizmoGameextends java.lang.Object
```

The GizmoGame class represents a mutable running game of GizmoBall. Representation Invariant: currentLevel != null, score != null

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

GizmoGame(Level level) Create a new GizmoGame.	

Method Summary

void	**draw**(java.awt.Graphics2D g) Draw a GizmoGame.
void	**fireSignal**(java.lang.String signal, int eventFirer) Transmits the connection Signal to all of the Gizmos
Level	**getLevel**() Get the current Level in play.
int	**getScore**() Get the current score.
void	**reset**() Reset a GizmoGame.
void	**update**(int msecs) Update the run-mode state of a GizmoGame.

Methods inherited from class java.lang.Object
`equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait`

Constructor Detail

GizmoGame

```
public GizmoGame(Level level)
```

Create a new GizmoGame.

Effects:
Creates a GizmoGame playing `level` with all GameItems (Gizmos, Balls, etc.) in their initial states.

Method Detail

getLevel

```
public Level getLevel()
```

Get the current Level in play.

Returns:
The current Level

---

update

```
public void update(int msecs)
```

Update the run-mode state of a GizmoGame.

Effects:
The state of every GameItem in the GizmoGame is changed to the state after `msecs` milliseconds has passed.

---

reset

```
public void reset()
```

Reset a GizmoGame.

Effects:
Resets the score of the GizmoGame and calls reset() on its level.

---

getScore

```
public int getScore()
```

Get the current score.

Returns:
the score of the current gizmoball game.

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Draw a GizmoGame.

Effects:
Calls draw(`g`) on all GameItems in the GizmoGame.

---

fireSignal

```
public void fireSignal(java.lang.String signal,
                       int eventFirer)
```

Transmits the connection Signal to all of the Gizmos

Parameters:
`signal` - Which type of key event was fired
`eventFirer` - Which key fired the event
Effects:
Calls keyPressed(`eventFirer`) or keyReleased(`eventFirer`) as as appropriate on all Gizmos.

---

gizmoball.base

Class GizmoPropertyException

```
java.lang.Object
  └ java.lang.Throwable
      └ java.lang.Exception
          └ gizmoball.base.GizmoPropertyException
```

All Implemented Interfaces:

java.io.Serializable

```
public class GizmoPropertyExceptionextends java.lang.Exception
```

The GizmoPropertyException class is an exception signifying that an attempt has been made to set a gizmo's properties to invalid values.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

See Also:

`Gizmo.setPropertyValues()`, Serialized Form

Constructor Summary

`GizmoPropertyException``(java.lang.String s)` Create a GizmoPropertyException.

Method Summary

Methods inherited from class java.lang.Throwable
`fillInStackTrace, getCause, getLocalizedMessage, getMessage, getStackTrace, initCause, printStackTrace, printStackTrace, printStackTrace, setStackTrace, toString`

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, wait, wait, wait

Constructor Detail

GizmoPropertyException

```
public GizmoPropertyException(java.lang.String s)
```

Create a GizmoPropertyException. The exception will be created with the message `s`.

Returns:

the new GizmoPropertyException.

---

gizmoball.base

Class Level

```
java.lang.Object
  └ gizmoball.base.Level
```

All Implemented Interfaces:

GameXMLWriter

```
public class Levelextends java.lang.Objectimplements GameXMLWriter
```

The Level class represents a mutable gizmoball game level.

The name of gizmos and balls **must not** be changed while they are in a Level.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Specification Fields

- `name`
- `levelNumber`
- `environment`
- `balls`
- `gizmos`

AF

> name = this.name
> levelNumber = this.number
> environment = this.env
> balls = this.balls
> gizmos = this.gizmos <p>

RI

> name != null && env != null && balls != null && gizmos != null
> && for all x,y in gizmos x.name == y.name iff x == y
> && for all x,y in balls x.name == y.name iff x == y <p>

Field Summary

static int	**BOARD_HEIGHT** The height of the game board in sectors.
static int	**BOARD_WIDTH** The width of the game board in sectors.

Constructor Summary

Level(java.lang.String name) Create a new Level.
Level(java.lang.String name, int number, double gravity, double friction1, double friction2, java.util.List<Ball> balls, java.util.List<Gizmo> gizmos) Create a new Level.

Method Summary

boolean	**addBall**(Ball b) Add a Ball to this level.
boolean	**addGizmo**(Gizmo g) Add a Gizmo to this level.
void	**draw**(java.awt.Graphics2D g) Draw a Level.
Ball	**getBallAtPoint**(double x, double y) Returns a Ball containing the point (x,y), if any.
java.lang.Iterable<Ball>	**getBalls**() Get a list of Balls in this level.
Environment	**getEnvironment**() Get the environment of this Level.
Gizmo	**getGizmoByName**(java.lang.String name) Get a Gizmo by its name.
Gizmo	**getGizmoInSector**(int x, int y) Get the Gizmo in a board sector.
java.lang.Iterable<Gizmo>	**getGizmos**() Get a list of all Gizmos in this level.

java.lang.String	**getName**() Get the name of this Level.
int	**getNumber**() Get the nubmer of this Level.
boolean	**gizmoFits**(Gizmo g) Determine if a gizmo will fit in a level.
boolean	**hasBallByName**(java.lang.String name) Check if a Level has a Ball.
boolean	**hasGizmoByName**(java.lang.String name) Check if a Level has a Gizmo.
boolean	**removeBall**(Ball b) Remove a Ball from this level.
boolean	**removeGizmo**(Gizmo g) Remove a Gizmo from this level.
void	**reset**() Resets a Level.
void	**setName**(java.lang.String name) Set the name of this Level.
void	**setNumber**(int number) Set the number of this Level.
org.w3c.dom.Element	**toXML**(boolean compatible) Create an XML representation of a Level, including Balls, Gizmos, and connections.

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Field Detail

BOARD_WIDTH

public static final int **BOARD_WIDTH**

The width of the game board in sectors.

See Also:
Constant Field Values

BOARD_HEIGHT

```
public static final int BOARD_HEIGHT
```

The height of the game board in sectors.

See Also:
Constant Field Values

Constructor Detail

Level

```
public Level(java.lang.String name)
```

Create a new Level. The created level will have the name `name`, levelNumber 0, an environment with the default values, and one OuterWalls gizmo.

Throws:
`java.lang.IllegalArgumentException` - if `name` is null.
See Also:
`Environment`
Returns:
The newly created Level.

Level

```
public Level(java.lang.String name,
             int number,
             double gravity,
             double friction1,
             double friction2,
             java.util.List<Ball> balls,
             java.util.List<Gizmo> gizmos)
```

Create a new Level. The created level will have the name `name`, levelNumber `number`, an environment with gravitational acceleration `gravity`, time coefficient of friction `mu1`, position coefficient of friction `mu2`, the specified `balls`, the specified `gizmos`, as well as one OuterWalls gizmo. If `balls` or `gizmos` are null, they are treated as empty lists.

Throws:

`java.lang.IllegalArgumentException` - if `name` is null.

`java.lang.IllegalArgumentException` - if `gizmos` or `balls` contain null elements.

Returns:

The newly created Level.

Method Detail

addBall

```
public boolean addBall(Ball b)
```

Add a Ball to this level.

Throws:

`java.lang.IllegalArgumentException` - if `b` == null

Effects:

If `b` is non-null and has a name distinct from the balls in this level, it is added to the balls in this level.

Modifies:

this.

Returns:

true iff `b` was added to this Level

---

addGizmo

```
public boolean addGizmo(Gizmo g)
```

Add a Gizmo to this level.

Throws:

`java.lang.IllegalArgumentException` - if `g` == null

Effects:

If `g` is non-null and has a name distinct from the Gizmos in this level, it is added to the gizmos in this level.

Modifies:

this.

Returns:

true iff `g` was added to this Level

---

hasGizmoByName

```
public boolean hasGizmoByName(java.lang.String name)
```

Check if a Level has a Gizmo.

Returns:
true if this Level contains a Gizmo named `name`, false otherwise.

---

getGizmoByName

```
public Gizmo getGizmoByName(java.lang.String name)
```

Get a Gizmo by its name.

Returns:
if some x in gizmo such that x.name == `name`, then return x, else return null.

---

hasBallByName

```
public boolean hasBallByName(java.lang.String name)
```

Check if a Level has a Ball.

Returns:
true if this Level contains a Ball named `name`, false otherwise.

---

removeBall

```
public boolean removeBall(Ball b)
```

Remove a Ball from this level.

Effects:
for all x in newthis.balls x != b.
Modifies:
this.
Returns:
for some x in this.balls x == b.

---

removeGizmo

```
public boolean removeGizmo(Gizmo g)
```

Remove a Gizmo from this level.

Effects:
for all x in newthis.gizmos x != b.
Modifies:
this.
Returns:
for some x in this.gizmos x == b.

---

getBalls

```
public java.lang.Iterable<Ball> getBalls()
```

Get a list of Balls in this level.

Returns:
balls.

---

getGizmos

```
public java.lang.Iterable<Gizmo> getGizmos()
```

Get a list of all Gizmos in this level.

Returns:
gizmos.

---

getEnvironment

```
public Environment getEnvironment()
```

Get the environment of this Level.

Returns:
environment.

---

setName

```
public void setName(java.lang.String name)
```

Set the name of this Level.

Effects:
newthis.name == `name`.

setNumber

```
public void setNumber(int number)
```

Set the number of this Level.

Effects:
newthis.levelNumber = `number`.

---

getName

```
public java.lang.String getName()
```

Get the name of this Level.

Returns:
name.

---

getNumber

```
public int getNumber()
```

Get the nubmer of this Level.

Returns:
levelNumber.

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Draw a Level.

Effects:
draws this Level using `g`.
Modifies:
`g`

---

toXML

```
public org.w3c.dom.Element toXML(boolean compatible)
```

Create an XML representation of a Level, including Balls, Gizmos, and connections.

Specified by:
`toXML` in interface `GameXMLWriter`

Parameters:
`compatible` - Be strictly compatible with 6.170 schema

Returns:
the XML.

---

getGizmoInSector

```
public Gizmo getGizmoInSector(int x,
                              int y)
```

Get the Gizmo in a board sector.

Returns:
if for some g in gizmos g.sector == (x,y), then return g, else return null.

---

getBallAtPoint

```
public Ball getBallAtPoint(double x,
                           double y)
```

Returns a Ball containing the point (x,y), if any.

Returns:
if for some b in balls b.containsPoint(x,y), then returns b, else returns null.

See Also:
`Ball.containsPoint()`

---

gizmoFits

```
public boolean gizmoFits(Gizmo g)
```

Determine if a gizmo will fit in a level.

Returns:
true if all sectors of `g` are not associated with any gizmo in this level, and if no ball collides with `g`, flase otherwise.

---

reset

```
public void reset()
```

Resets a Level.

Effects:
Calls reset() on all of the balls and gizmos in the level, and on the Environment.
Modifies:
this.

---

gizmoball.envmods

Class Shockwave

```
java.lang.Object
  └ gizmoball.base.EnvironmentModifier
      └ gizmoball.envmods.Shockwave
```

```
public class Shockwaveextends EnvironmentModifier
```

Shockwave represents a mutable travelling shockwave that modifies gravity by a constant radial amount within a ring around its center.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

Shockwave(double x, double y, double width, double speed, double amplitude) Create a Shockwave with the specified active region width, expansion speed, and outward gravitational amplitude, centered at (x,y).

Method Summary

void	**draw**(java.awt.Graphics2D g) Draw an EnvironmentModifier.
double	**getGX**(double x, double y) Get the x component of gravity at a point.
double	**getGY**(double x, double y) Get the y component of gravity at a point.
double	**getMu1**(double x, double y) Get the time-proportional coefficient of friction at a point.
double	**getMu2**(double x, double y) Get the distance-proportional coefficient of friction at a point.
boolean	**isExpired**() Check if an EnvironmentModifier is expired.
void	**update**(double secs) Update an EnvironmentModifier's internal state.

Methods inherited from class gizmoball.base.EnvironmentModifier

setParent

Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

Shockwave

```
public Shockwave(double x,
                 double y,
                 double width,
                 double speed,
                 double amplitude)
```

Create a Shockwave with the specified active region `width`, expansion `speed`, and outward gravitational `amplitude`, centered at (`x`,`y`).

Returns:
the new Shockwave.

Method Detail

update

```
public void update(double secs)
```

Description copied from class: `EnvironmentModifier`
Update an EnvironmentModifier's internal state.

Overrides:
`update` in class `EnvironmentModifier`
Effects:
updates this environment modifier for `msec` milliseconds.
Modifies:
this.

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Description copied from class: `EnvironmentModifier`
Draw an EnvironmentModifier.

Overrides:
`draw` in class `EnvironmentModifier`
Effects:
draws this EnvironmentModifier using `g`.
Modifies:
g

---

isExpired

```
public boolean isExpired()
```

Description copied from class: `EnvironmentModifier`
Check if an EnvironmentModifier is expired.

Overrides:
`isExpired` in class `EnvironmentModifier`

Returns:
true if this EnvironmentModifier is expired, false otherwise.

---

getGX

```
public double getGX(double x,
                    double y)
```

Description copied from class: `EnvironmentModifier`
Get the x component of gravity at a point.

Specified by:
`getGX` in class `EnvironmentModifier`

Returns:
The x component of the gravitation acceleration at (x,y).

---

getGY

```
public double getGY(double x,
                    double y)
```

Description copied from class: `EnvironmentModifier`
Get the y component of gravity at a point.

Specified by:
`getGY` in class `EnvironmentModifier`

Returns:
The y component of the gravitation acceleration at (x,y).

---

getMu1

```
public double getMu1(double x,
                     double y)
```

Description copied from class: `EnvironmentModifier`
Get the time-proportional coefficient of friction at a point.

Specified by:
`getMu1` in class `EnvironmentModifier`

Returns:
The coefficient of friction mu1 at (x,y).

getMu2

```
public double getMu2(double x,
                     double y)
```

Description copied from class: `EnvironmentModifier`
Get the distance-proportional coefficient of friction at a point.

Specified by:
`getMu2` in class `EnvironmentModifier`

Returns:
The coefficient of friction mu2 at (x,y).

gizmoball.filesystem

Class FilesystemManager

```
java.lang.Object
  └ gizmoball.filesystem.FilesystemManager
```

```
public class FilesystemManagerextends java.lang.Object
```

Takes care of the GizmoBall-specific XML handling and file loading and saving.

Constructor Summary

FilesystemManager()	

Method Summary

static Level	**levelFromXMLDoc**(org.w3c.dom.Document doc) Parses and returns a well-formatted GizmoBall level, given an XML doc.
static void	**themeFromXMLDoc**(org.w3c.dom.Document doc, java.lang.String themeDirectoryPath, Theme theme) Loads XML document into the Theme object.
static void	**writeLevelToFile**(Level lvl, java.lang.String filename, boolean compatible) Writes the level to a file.
static org.w3c.dom.Document	**XMLDocFromInputStream**(java.io.InputStream is, java.lang.String filename) Creates an XML document from an input stream, validating it as it goes.
static org.w3c.dom.Document	**XMLDocFromInternalBoard**(java.lang.String filename) Creates an XML document from inside the JAR.
static org.w3c.dom.Document	**XMLDocFromPath**(java.lang.String filename) Creates an XML document from the filesystem.

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

FilesystemManager

```
public FilesystemManager()
```

Method Detail

XMLDocFromInternalBoard

```
public static org.w3c.dom.Document XMLDocFromInternalBoard(java.lang.String filename)
                                                    throws GizmoXMLException
```

Creates an XML document from inside the JAR.

Parameters:
`filename` - The relative name (without path or extension) of a board file in the XML directory.
Throws:
`GizmoXMLException` - if there are problems accessing or parsing the file.
Returns:
Returns an XML representation of a level from the appropriate point in the JAR.

XMLDocFromPath

```
public static org.w3c.dom.Document XMLDocFromPath(java.lang.String filename)
                                           throws GizmoXMLException
```

Parameters:
`filename` - The exact name (with path and extension) of a board file anywhere in the filesystem.
Throws:
`GizmoXMLException` - if there are problems accessing or parsing the file.
Returns:
Returns an XML representation of a level from the appropriate point in the filesystem.

XMLDocFromInputStream

```
public static org.w3c.dom.Document XMLDocFromInputStream(java.io.InputStream is,
                                                         java.lang.String filename)
                                                  throws GizmoXMLException
```

Throws:

`GizmoXMLException` - if there are problems accessing or parsing the file.

Returns:

Returns an XML representation of a level from the given stream

---

themeFromXMLDoc

```
public static void themeFromXMLDoc(org.w3c.dom.Document doc,
                                   java.lang.String themeDirectoryPath,
                                   Theme theme)
```

Parameters:

`themeDirectoryPath` - The directory containing the theme file, with native slashes.

Effects:

Loads the theme described in `doc` into `theme`.

---

levelFromXMLDoc

```
public static Level levelFromXMLDoc(org.w3c.dom.Document doc)
```

Parses and returns a well-formatted GizmoBall level, given an XML doc.

Returns:

The Level described by `doc`

---

writeLevelToFile

```
public static void writeLevelToFile(Level lvl,
                                    java.lang.String filename,
                                    boolean compatible)
                             throws java.io.IOException
```

Writes the level to a file.

Throws:

`java.io.IOException` - if `filename` is a directory or unaccessible

Effects:

Unparses `lvl` and writes it in XML format to `filename`

gizmoball.filesystem
Class GizmoFileFilter

```
java.lang.Object
  └ javax.swing.filechooser.FileFilter
      └ gizmoball.filesystem.GizmoFileFilter
```

public class **GizmoFileFilter**extends javax.swing.filechooser.FileFilter

A filter that tells the FileChoosers which file types to display. Has options for loading GizmoBall levels and themes.

Author:
David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

GizmoFileFilter()	

Method Summary

boolean	**accept**(java.io.File f) Whether or not the filter lets file f display in the directory.
java.lang.String	**getDescription**() A description of the filter.
static java.lang.String	**getExtension**(java.io.File f) Get the extension of file f.
void	**setFilterBoard**() Sets the filter to filter for GizmoBoard files
void	**setFilterTheme**() Sets the filter to filter for GizmoTheme files
void	**setFilterXML**() Sets the filter to filter for generic XML files

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

GizmoFileFilter

public **GizmoFileFilter**()

Method Detail

accept

public boolean **accept**(java.io.File f)

Whether or not the filter lets file f display in the directory.

Specified by:
accept in class javax.swing.filechooser.FileFilter

---

getDescription

public java.lang.String **getDescription**()

A description of the filter.

Specified by:
getDescription in class javax.swing.filechooser.FileFilter

---

getExtension

public static java.lang.String **getExtension**(java.io.File f)

Get the extension of file f.

---

setFilterTheme

`public void` **`setFilterTheme`**`()`

Sets the filter to filter for GizmoTheme files

---

setFilterBoard

`public void` **`setFilterBoard`**`()`

Sets the filter to filter for GizmoBoard files

---

setFilterXML

`public void` **`setFilterXML`**`()`

Sets the filter to filter for generic XML files

---

gizmoball.filesystem

Class GizmoXMLException

```
java.lang.Object
  └ java.lang.Throwable
      └ java.lang.Exception
          └ gizmoball.filesystem.GizmoXMLException
```

All Implemented Interfaces:

java.io.Serializable

```
public class GizmoXMLExceptionextends java.lang.Exception
```

An exception thrown when there are problems with converting from the xml to in memory objects, or vice versa.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

See Also:

Serialized Form

Constructor Summary

GizmoXMLException(java.lang.String message)	

Method Summary

Methods inherited from class java.lang.Throwable
fillInStackTrace, getCause, getLocalizedMessage, getMessage, getStackTrace, initCause, printStackTrace, printStackTrace, printStackTrace, setStackTrace, toString

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, wait, wait, wait

Constructor Detail

GizmoXMLException

public **GizmoXMLException**(java.lang.String message)

---

gizmoball.filesystem

Class XMLHelper

```
java.lang.Object
  └ gizmoball.filesystem.XMLHelper
```

public class **XMLHelper**extends java.lang.Object

A utility class consisting of static methods that are helpful in manipulating XML documents. This class should not be instantiated.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

XMLHelper()	

Method Summary

static org.w3c.dom.Element	**element**(java.lang.String eltName, java.lang.Object... args) This function takes an element name and a variable-length list of key/value pairs and returns a well-formed XML element.
static java.lang.String	**elementToString**(org.w3c.dom.Element el) Converts an XML element to a string.

Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

XMLHelper

```
public XMLHelper()
```

Method Detail

element

```
public static org.w3c.dom.Element element(java.lang.String eltName,
                                          java.lang.Object... args)
```

This function takes an element name and a variable-length list of key/value pairs and returns a well-formed XML element.

Parameters:

`eltName` - the XML element name (must be a single token)

`args` - arguments, alternating key and value, which will be converted to string with toString()

Throws:

`java.lang.IllegalArgumentException` - if there are an odd number of arguments after the element name

Returns:

an XML element

---

elementToString

```
public static java.lang.String elementToString(org.w3c.dom.Element el)
```

Converts an XML element to a string. Should be used on the whole document, since it includes the xml declaration.

Parameters:

`el` - the XML Element

Returns:

a String representation of the Element

---

gizmoball.gizmos

Class Absorber

```
java.lang.Object
  └ gizmoball.base.Gizmo
      └ gizmoball.gizmos.Absorber
```

All Implemented Interfaces:

GameItem, GameXMLWriter

```
public class Absorberextends Gizmo
```

The Absorber class represents a rectangluar gizmo. Any Ball colliding with an Absorber is taken out of play until the Absorber is activated. Upon activation, the Absorber releases the oldest Ball it contains from its upper right corner.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

Absorber(java.lang.String name, int x, int y, int width, int height) Create an Absorber

Method Summary

boolean	**collide**(Ball b, double secs) Handle a collision between an Absorber and Ball.
double	**collisionTime**(Ball ball) Determine the time until a Gizmo and Ball collide.
void	**draw**(java.awt.Graphics2D g) Draw a GameItem.
void	**drawBB**(java.awt.Graphics2D g, java.awt.Color c) Draw the bounding box of a GameItem.
double	**getHeight**()
java.util.List<java.lang.String>	**getPropertyNames**() Get the names of a gizmo's properties.
java.util.List<java.lang.String>	**getPropertyValues**() Get the values of a gizmo's properties.
java.lang.Iterable<BoardSector>	**getSectors**() Get all of the sectors this Absorber is over.
double	**getWidth**()
double	**getX**() Get this Gizmo's x position.
double	**getY**() Get this Gizmo's y position.
boolean	**overlapsWith**(Ball ball) Determine if a ball is overlapping with a gizmo.
boolean	**overSector**(int sectorX, int sectorY) Check if an Absorber is over a given board sector.
int	**pollScore**() Returns the score since that last popScore without modyfing the score
int	**popScore**() Returns the score since that last popScore and clears the score
void	**reset**() Resets an Absorber.
void	**setPosition**(int x, int y)
void	**setPropertyValues**(java.util.List<java.lang.String> values) Set the values of a gizmo's properties.

org.w3c.dom.Element	**toXML**(boolean compatible) Create an XML representation of a Gizmo.
void	**update**(double secs, Environment env) Update the state of an Absorber.

Methods inherited from class gizmoball.base.Gizmo
addPressCode, addReleaseCode, addTarget, equals, eventWaiting, getCenterX, getCenterY, getName, getOrientation, getPressCodes, getReleaseCodes, getTargets, hashCode, hasTarget, isRotatable, keyPressed, keyReleased, popEvent, receiveTrigger, removePressCode, removeReleaseCode, removeTarget, rotateCCW, rotateCW, setOrientation, triggerTargets

Methods inherited from class java.lang.Object
getClass, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

Absorber

```
public Absorber(java.lang.String name,
                int x,
                int y,
                int width,
                int height)
```

Create an Absorber

Effects:

Creates an Absorber named `name` with the upper left corner on sector (`x`,`y`) with dimensions

`width` by `height`.

Returns:

the new Absorber.

Method Detail

setPosition

```
public void setPosition(int x,
                        int y)
```

Specified by:

`setPosition` in class `Gizmo`

---

update

```
public void update(double secs,
                   Environment env)
```

Update the state of an Absorber.

Specified by:

`update` in interface `GameItem`

Overrides:

`update` in class `Gizmo`

Effects:

Increments the state of a BasicGizmo for `secs` seconds in a physical environment described by `env`.

Modifies:

this.

---

reset

```
public void reset()
```

Resets an Absorber.

Specified by:

`reset` in interface `GameItem`

Overrides:

`reset` in class `Gizmo`

Effects:

Resets all internal state, puts all contained balls in play

Modifies:

this.

getX

`public double` **`getX`**`()`

Description copied from class: `Gizmo`
Get this Gizmo's x position.

Specified by:
`getX` in class `Gizmo`
Returns:
X coordinate
Returns:
The x coordinate of the center of this Gizmo in units of sectors.

---

getWidth

`public double` **`getWidth`**`()`

Returns:
The width of the Gizmo

---

getHeight

`public double` **`getHeight`**`()`

Returns:
The height of the Gizmo

---

getY

`public double` **`getY`**`()`

Description copied from class: `Gizmo`
Get this Gizmo's y position.

Specified by:
`getY` in class `Gizmo`
Returns:
Y coordinate
Returns:
The y coordinate of the center of this Gizmo in units of sectors.

---

overSector

```
public boolean overSector(int sectorX,
                          int sectorY)
```

Check if an Absorber is over a given board sector.

Specified by:
`overSector` in interface `GameItem`
Specified by:
`overSector` in class `Gizmo`
Returns:
if this Absorber is over the sector at (sectorX, sectorY).

---

getSectors

```
public java.lang.Iterable<BoardSector> getSectors()
```

Get all of the sectors this Absorber is over.

Returns:
all sectors (x,y) such that this.isOver(x,y) is true.

---

overlapsWith

```
public boolean overlapsWith(Ball ball)
```

Determine if a ball is overlapping with a gizmo.

Specified by:
`overlapsWith` in class `Gizmo`
Returns:
true if `ball` overlaps with this gizmo. false otherwise.

---

collisionTime

```
public double collisionTime(Ball ball)
```

Determine the time until a Gizmo and Ball collide.

Specified by:
`collisionTime` in class `Gizmo`
Throws:
`java.lang.IllegalArgumentException` - if `ball` is null.

Returns:

The number of seconds until `ball` collides with this Gizmo if they will collide, Double.POSITIVE_INFINITY otherwise.

---

collide

```
public boolean collide(Ball b,
                       double secs)
```

Handle a collision between an Absorber and Ball.

Specified by:

`collide` in class `Gizmo`

Throws:

`java.lang.IllegalArgumentException` - if b == null

Effects:

if willCollide(b, secs) then make the Gizmo active, make the Gizmo's target (if any) active, set the reflected velocity of `b`.

Modifies:

this, b

Returns:

willCollide(b, msecs)

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Description copied from interface: `GameItem`

Draw a GameItem.

Effects:

Draws an Absorber using `g`.

Modifies:

`g`.

---

drawBB

```
public void drawBB(java.awt.Graphics2D g,
                   java.awt.Color c)
```

Description copied from interface: `GameItem`

Draw the bounding box of a GameItem.

Effects:

Draws the bounding box of this game item using `g`.

Modifies:
g.

---

getPropertyNames

```
public java.util.List<java.lang.String> getPropertyNames()
```

Get the names of a gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Overrides:
getPropertyNames in class Gizmo
Returns:
an ordered list of property names.

---

getPropertyValues

```
public java.util.List<java.lang.String> getPropertyValues()
```

Get the values of a gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Overrides:
getPropertyValues in class Gizmo
Returns:
an ordered list of property values as Strings.

---

setPropertyValues

```
public void setPropertyValues(java.util.List<java.lang.String> values)
                       throws GizmoPropertyException
```

Set the values of a gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Overrides:
setPropertyValues in class Gizmo
Throws:
java.lang.IllegalArgumentException - if the size of values does not match the size of the list returned by getPropertyNames().
GizmoPropertyException
Effects:
newthis.getPropertyValues == values
Modifies:
this

toXML

```
public org.w3c.dom.Element toXML(boolean compatible)
```

Create an XML representation of a Gizmo. The XML returned is a well-formed node.

Parameters:
`compatible` - Be strictly compatible with 6.170 schema
Returns:
the XML.

pollScore

```
public int pollScore()
```

Returns the score since that last popScore without modyfing the score

Overrides:
`pollScore` in class `Gizmo`

popScore

```
public int popScore()
```

Returns the score since that last popScore and clears the score

Overrides:
`popScore` in class `Gizmo`

---

gizmoball.gizmos

Class BasicGizmo

```
java.lang.Object
  └ gizmoball.base.Gizmo
      └ gizmoball.gizmos.BasicGizmo
```

All Implemented Interfaces:

GameItem, GameXMLWriter

Direct Known Subclasses:

CircleBumper, SquareBumper, TriangleBumper

```
public abstract class BasicGizmoextends Gizmo
```

BasicGizmo represents a mutable 1x1 Gizmo that acts as a bumper and does not move. It is an abstract class; subclasses need to define its specific shape.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Method Summary

boolean	**collide**(Ball b, double secs) Handle a collision between a Gizmo and Ball.
double	**collisionTime**(Ball ball) Determine the time until a Gizmo and Ball collide.
void	**drawBB**(java.awt.Graphics2D g, java.awt.Color c) Draw the bounding box of a GameItem.
java.lang.Iterable<BoardSector>	**getSectors**() Get all of the sectors a BasicGizmo is over.
double	**getX**() Get this Gizmo's x position.
double	**getY**() Get this Gizmo's y position.
boolean	**overSector**(int sectorX, int sectorY) Check if a Gizmo is over a given board sector.
void	**setPosition**(int x, int y)

Methods inherited from class gizmoball.base.Gizmo

addPressCode, addReleaseCode, addTarget, equals, eventWaiting, getCenterX, getCenterY, getName, getOrientation, getPressCodes, getPropertyNames, getPropertyValues, getReleaseCodes, getTargets, hashCode, hasTarget, isRotatable, keyPressed, keyReleased, overlapsWith, pollScore, popEvent, popScore, receiveTrigger, removePressCode, removeReleaseCode, removeTarget, reset, rotateCCW, rotateCW, setOrientation, setPropertyValues, triggerTargets, update

Methods inherited from class java.lang.Object

getClass, notify, notifyAll, toString, wait, wait, wait

Methods inherited from interface gizmoball.base.GameItem

draw

Methods inherited from interface gizmoball.base.GameXMLWriter
`toXML`

Method Detail

setPosition

```
public void setPosition(int x,
                        int y)
```

Specified by:
`setPosition` in class `Gizmo`

---

getX

```
public double getX()
```

Description copied from class: `Gizmo`
Get this Gizmo's x position.

Specified by:
`getX` in class `Gizmo`
Returns:
X coordinate
Returns:
The x coordinate of the center of this Gizmo in units of sectors.

---

getY

```
public double getY()
```

Description copied from class: `Gizmo`
Get this Gizmo's y position.

Specified by:
`getY` in class `Gizmo`
Returns:
Y coordinate
Returns:
The y coordinate of the center of this Gizmo in units of sectors.

overSector

```
public boolean overSector(int sectorX,
                          int sectorY)
```

Check if a Gizmo is over a given board sector.

Specified by:
`overSector` in interface `GameItem`
Specified by:
`overSector` in class `Gizmo`
Returns:
if this Gizmo is over the sector at (sectorX, sectorY).

---

getSectors

```
public java.lang.Iterable<BoardSector> getSectors()
```

Get all of the sectors a BasicGizmo is over.

Returns:
an Iterator containing the BoardSector this BasicGizmo is over.

---

collisionTime

```
public double collisionTime(Ball ball)
```

Determine the time until a Gizmo and Ball collide.

Specified by:
`collisionTime` in class `Gizmo`
Throws:
`java.lang.IllegalArgumentException` - if `ball` is null.
Returns:
The number of seconds until `ball` collides with this Gizmo if they will collide, Double.POSITIVE_INFINITY otherwise.

---

collide

```
public boolean collide(Ball b,
                       double secs)
```

Handle a collision between a Gizmo and Ball.

Specified by:
`collide` in class `Gizmo`

Throws:
`java.lang.IllegalArgumentException` - if b == null

Effects:
if b will collide with g in secs seconds then make the Gizmo active, make the Gizmo's target (if any) active, set the reflected velocity of `b`.

Modifies:
this, b

Returns:
true if Ball `b` will collide with this gizmo in `msecs` milliseconds or less, false otherwise.

---

drawBB

```
public void drawBB(java.awt.Graphics2D g,
                   java.awt.Color c)
```

Description copied from interface: `GameItem`
Draw the bounding box of a GameItem.

Effects:
Draws the bounding box of this game item using `g`.

Modifies:
`g`.

---

gizmoball.gizmos

Class BreakawaySquareBumper

```
java.lang.Object
  └ gizmoball.base.Gizmo
      └ gizmoball.gizmos.BasicGizmo
          └ gizmoball.gizmos.SquareBumper
              └ gizmoball.gizmos.BreakawaySquareBumper
```

All Implemented Interfaces:

GameItem, GameXMLWriter

```
public class BreakawaySquareBumperextends SquareBumper
```

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

BreakawaySquareBumper(java.lang.String name, int x, int y, int numberOfHits)

Creates a new Breakaway Square Bumper

Method Summary	
void	**draw**(java.awt.Graphics2D g) Draw a GameItem.
java.util.List<java.lang.String>	**getPropertyNames**() Get the names of a gizmo's properties.
java.util.List<java.lang.String>	**getPropertyValues**() Get the values of a gizmo's properties.
int	**pollScore**() Returns the score since that last popScore without modyfing the score
int	**popScore**() Returns the score since that last popScore and clears the score
void	**reset**() Resets a Gizmo.
void	**setPropertyValues**(java.util.List<java.lang.String> values) Get the values of a gizmo's properties.
org.w3c.dom.Element	**toXML**(boolean compatible) Create an XML representation of a Gizmo.

Methods inherited from class gizmoball.gizmos.SquareBumper
overlapsWith

Methods inherited from class gizmoball.gizmos.BasicGizmo
collide, collisionTime, drawBB, getSectors, getX, getY, overSector, setPosition

Methods inherited from class gizmoball.base.Gizmo
addPressCode, addReleaseCode, addTarget, equals, eventWaiting, getCenterX, getCenterY, getName, getOrientation, getPressCodes, getReleaseCodes, getTargets, hashCode, hasTarget, isRotatable, keyPressed, keyReleased, popEvent, receiveTrigger, removePressCode, removeReleaseCode, removeTarget, rotateCCW, rotateCW, setOrientation, triggerTargets, update

Methods inherited from class java.lang.Object
getClass, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

BreakawaySquareBumper

```
public BreakawaySquareBumper(java.lang.String name,
                             int x,
                             int y,
                             int numberOfHits)
```

Creates a new Breakaway Square Bumper

Parameters:

`name` - The name of the Bumper
`x` - The x Coordinate of the Bumper
`y` - The y Coordinate of the Bumper
`numberOfHits` - The number of hits until the bumper disapears

Method Detail

reset

```
public void reset()
```

Resets a Gizmo.

Specified by:

`reset` in interface `GameItem`

Overrides:
`reset` in class `Gizmo`
Effects:
Resets all internal state.
Modifies:
this.

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Description copied from interface: `GameItem`
Draw a GameItem.

Specified by:
`draw` in interface `GameItem`
Overrides:
`draw` in class `SquareBumper`

---

getPropertyNames

```
public java.util.List<java.lang.String> getPropertyNames()
```

Get the names of a gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Overrides:
`getPropertyNames` in class `Gizmo`
Returns:
an ordered list of property names.

---

getPropertyValues

```
public java.util.List<java.lang.String> getPropertyValues()
```

Get the values of a gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Overrides:
`getPropertyValues` in class `Gizmo`
Returns:
an ordered list of property values as Strings.

---

setPropertyValues

```
public void setPropertyValues(java.util.List<java.lang.String> values)
                       throws GizmoPropertyException
```

Get the values of a gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Overrides:
`setPropertyValues` in class `Gizmo`
Throws:
`java.lang.IllegalArgumentException` - if the size of `values` does not match the size of the list returned by getPropertyNames().
`GizmoPropertyException`
Effects:
newthis.getPropertyValues == `values`
Modifies:
this

---

toXML

```
public org.w3c.dom.Element toXML(boolean compatible)
```

Create an XML representation of a Gizmo. The XML returned is a well-formed node.

Specified by:
`toXML` in interface `GameXMLWriter`
Overrides:
`toXML` in class `SquareBumper`
Parameters:
`compatible` - Be strictly compatible with 6.170 schema
Returns:
the XML.

---

pollScore

```
public int pollScore()
```

Returns the score since that last popScore without modyfing the score

Overrides:
`pollScore` in class `SquareBumper`

---

popScore

```
public int popScore()
```

Returns the score since that last popScore and clears the score

Overrides:

`popScore` in class `SquareBumper`

---

gizmoball.gizmos

Class CircleBumper

```
java.lang.Object
  └ gizmoball.base.Gizmo
      └ gizmoball.gizmos.BasicGizmo
          └ gizmoball.gizmos.CircleBumper
```

All Implemented Interfaces:

GameItem, GameXMLWriter

Direct Known Subclasses:

Shocker

```
public class CircleBumperextends BasicGizmo
```

CircleBumper represents a mutable, circular Gizmo. CircleBumpers reflect Balls from their surface but perform no action when they are triggered. A CircleBumper is centered at (x+0.5L, y+0.5L) and has a radius of 0.5L.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

CircleBumper(java.lang.String name, int x, int y) Create a CircleBumper.	

Method Summary

void	**draw**(java.awt.Graphics2D g) Draw a GameItem.
boolean	**overlapsWith**(Ball ball) Determine if a ball is overlapping with a gizmo.
int	**pollScore**() Returns the score since that last popScore without modyfing the score
int	**popScore**() Returns the score since that last popScore and clears the score
void	**reset**() Resets a Gizmo.
org.w3c.dom.Element	**toXML**(boolean compatible) Create an XML representation of a Gizmo.
void	**update**(double secs, Environment env) Update the state of a GameItem.

Methods inherited from class gizmoball.gizmos.BasicGizmo

collide, collisionTime, drawBB, getSectors, getX, getY, overSector, setPosition

Methods inherited from class gizmoball.base.Gizmo

addPressCode, addReleaseCode, addTarget, equals, eventWaiting, getCenterX, getCenterY, getName, getOrientation, getPressCodes, getPropertyNames, getPropertyValues, getReleaseCodes, getTargets, hashCode, hasTarget, isRotatable, keyPressed, keyReleased, popEvent, receiveTrigger, removePressCode, removeReleaseCode, removeTarget, rotateCCW, rotateCW, setOrientation, setPropertyValues, triggerTargets

Methods inherited from class java.lang.Object

getClass, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

CircleBumper

```
public CircleBumper(java.lang.String name,
                    int x,
                    int y)
```

Create a CircleBumper.

Effects:
Creates a CircleBumper named `name` at sector (`x`,`y`).
Returns:
the new CircleBumper.

Method Detail

reset

```
public void reset()
```

Resets a Gizmo.

Specified by:
`reset` in interface `GameItem`
Overrides:
`reset` in class `Gizmo`
Effects:
Resets all internal state.
Modifies:
this.

---

update

```
public void update(double secs,
                   Environment env)
```

Update the state of a GameItem.

Specified by:
`update` in interface `GameItem`
Overrides:
`update` in class `Gizmo`
Effects:
Increments the state of a GameItem for `secs` seconds in a physical environment described by `env`.

Modifies:
this.

---

overlapsWith

```
public boolean overlapsWith(Ball ball)
```

Determine if a ball is overlapping with a gizmo.

Specified by:
`overlapsWith` in class `Gizmo`
Returns:
true if `ball` overlaps with this gizmo. false otherwise.

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Description copied from interface: `GameItem`
Draw a GameItem.

---

toXML

```
public org.w3c.dom.Element toXML(boolean compatible)
```

Create an XML representation of a Gizmo. The XML returned is a well-formed node.

Parameters:
`compatible` - Be strictly compatible with 6.170 schema
Returns:
the XML.

---

pollScore

```
public int pollScore()
```

Returns the score since that last popScore without modyfing the score

Overrides:
`pollScore` in class `Gizmo`

---

popScore

```
public int popScore()
```

Returns the score since that last popScore and clears the score

Overrides:

`popScore` in class `Gizmo`

---

gizmoball.gizmos

Class Extender

```
java.lang.Object
  └ gizmoball.base.Gizmo
      └ gizmoball.gizmos.Extender
```

All Implemented Interfaces:

GameItem, GameXMLWriter

```
public class Extenderextends Gizmo
```

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

Extender(java.lang.String name, int x, int y, int xspan, int yspan)

Method Summary

boolean	**collide**(Ball b, double secs) Handle a collision between an Extender and Ball.
double	**collisionTime**(Ball ball) Determine the time until a Gizmo and Ball collide.
void	**draw**(java.awt.Graphics2D g) Draw a GameItem.
void	**drawBB**(java.awt.Graphics2D g, java.awt.Color c) Draw the bounding box of a GameItem.
java.util.List<java.lang.String>	**getPropertyNames**() Get the names of a gizmo's properties.
java.util.List<java.lang.String>	**getPropertyValues**() Get the values of a gizmo's properties.
java.lang.Iterable<BoardSector>	**getSectors**() Get all of the sectors an Extender is over.
double	**getX**() Get this Gizmo's x position.
double	**getXSpan**() Gets the extender's maximum X span.
double	**getY**() Get this Gizmo's y position.
double	**getYSpan**() Gets the extender's maximum Y span.
boolean	**overlapsWith**(Ball ball) Determine if a ball is overlapping with a gizmo.
boolean	**overSector**(int sectorX, int sectorY) Check if an Extender is over a given board sector.
int	**pollScore**() Returns the score since that last popScore without modyfing the score
int	**popScore**() Returns the score since that last popScore and clears the score
void	**reset**() Resets an Extender.
void	**setPosition**(int x, int y) Sets the extender's position.
void	**setPropertyValues**(java.util.List<java.lang.String> values) Get the values of a gizmo's properties.

org.w3c.dom.Element	**toXML**(boolean compatible) Create an XML representation of a Gizmo.
void	**update**(double secs, Environment env) Update the state of an Extender.

Methods inherited from class gizmoball.base.Gizmo
addPressCode, addReleaseCode, addTarget, equals, eventWaiting, getCenterX, getCenterY, getName, getOrientation, getPressCodes, getReleaseCodes, getTargets, hashCode, hasTarget, isRotatable, keyPressed, keyReleased, popEvent, receiveTrigger, removePressCode, removeReleaseCode, removeTarget, rotateCCW, rotateCW, setOrientation, triggerTargets

Methods inherited from class java.lang.Object
getClass, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

Extender

```
public Extender(java.lang.String name,
                int x,
                int y,
                int xspan,
                int yspan)
```

Method Detail

setPosition

```
public void setPosition(int x,
                        int y)
```

Sets the extender's position.

Specified by:
`setPosition` in class `Gizmo`

---

update

```
public void update(double secs,
                   Environment env)
```

Update the state of an Extender.

Specified by:
`update` in interface `GameItem`
Overrides:
`update` in class `Gizmo`
Effects:
Invokes Gizmo.update() and if this Extender is in extending mode, extends or contracts as neccessary.
Modifies:
this.

---

reset

```
public void reset()
```

Resets an Extender.

Specified by:
`reset` in interface `GameItem`
Overrides:
`reset` in class `Gizmo`
Effects:
Resets all internal state.
Modifies:
this.

---

getXSpan

`public double` **`getXSpan`**`()`

Gets the extender's maximum X span.

Returns:
maximum X span

---

getYSpan

`public double` **`getYSpan`**`()`

Gets the extender's maximum Y span.

Returns:
maximum Y span

---

getX

`public double` **`getX`**`()`

Description copied from class: `Gizmo`
Get this Gizmo's x position.

Specified by:
`getX` in class `Gizmo`
Returns:
X coordinate

---

getY

`public double` **`getY`**`()`

Description copied from class: `Gizmo`
Get this Gizmo's y position.

Specified by:
`getY` in class `Gizmo`
Returns:
Y coordinate

---

overSector

```
public boolean overSector(int sectorX,
                          int sectorY)
```

Check if an Extender is over a given board sector.

Specified by:
`overSector` in interface `GameItem`
Specified by:
`overSector` in class `Gizmo`
Returns:
if this Extender is over the sector at (sectorX, sectorY).

---

getSectors

```
public java.lang.Iterable<BoardSector> getSectors()
```

Get all of the sectors an Extender is over.

Returns:
returns all sectors this Extender is over.

---

overlapsWith

```
public boolean overlapsWith(Ball ball)
```

Determine if a ball is overlapping with a gizmo.

Specified by:
`overlapsWith` in class `Gizmo`
Returns:
true if `ball` overlaps with this gizmo. false otherwise.

---

collisionTime

```
public double collisionTime(Ball ball)
```

Determine the time until a Gizmo and Ball collide.

Specified by:
`collisionTime` in class `Gizmo`
Throws:
`java.lang.IllegalArgumentException` - if `ball` is null.

Returns:

The number of seconds until `ball` collides with this Gizmo if they will collide, Double.POSITIVE_INFINITY otherwise.

---

collide

```
public boolean collide(Ball b,
                       double secs)
```

Handle a collision between an Extender and Ball.

Specified by:

`collide` in class `Gizmo`

Throws:

`java.lang.IllegalArgumentException` - if b == null

Effects:

if b will collide with g in `secs` seconds then make the Extender active, make the Gizmo's target (if any) active, set the reflected velocity of `b`.

Modifies:

this, b

Returns:

true if Ball `b` will collide with this gizmo in `msecs` seconds or less, false otherwise.

---

getPropertyNames

```
public java.util.List<java.lang.String> getPropertyNames()
```

Get the names of a gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Overrides:

`getPropertyNames` in class `Gizmo`

Returns:

an ordered list of property names.

---

getPropertyValues

```
public java.util.List<java.lang.String> getPropertyValues()
```

Get the values of a gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Overrides:

`getPropertyValues` in class `Gizmo`

Returns:
an ordered list of property values as Strings.

---

setPropertyValues

```
public void setPropertyValues(java.util.List<java.lang.String> values)
                       throws GizmoPropertyException
```

Get the values of a gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Overrides:
`setPropertyValues` in class `Gizmo`
Throws:
`java.lang.IllegalArgumentException` - if the size of `values` does not match the size of the list returned by getPropertyNames().
`GizmoPropertyException`
Effects:
newthis.getPropertyValues == `values`
Modifies:
this

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Description copied from interface: `GameItem`
Draw a GameItem.

Effects:
Draws this Extender using `g`.
Modifies:
`g`.

---

drawBB

```
public void drawBB(java.awt.Graphics2D g,
                   java.awt.Color c)
```

Description copied from interface: `GameItem`
Draw the bounding box of a GameItem.

Effects:
Draws the bounding box of this game item using `g`.

Modifies:
g.

---

toXML

```
public org.w3c.dom.Element toXML(boolean compatible)
```

Create an XML representation of a Gizmo. The XML returned is a well-formed node.

Parameters:
`compatible` - Be strictly compatible with 6.170 schema
Returns:
the XML.

---

pollScore

```
public int pollScore()
```

Returns the score since that last popScore without modyfing the score

Overrides:
`pollScore` in class `Gizmo`

---

popScore

```
public int popScore()
```

Returns the score since that last popScore and clears the score

Overrides:
`popScore` in class `Gizmo`

---

gizmoball.gizmos
Class Flipper

```
java.lang.Object
  └ gizmoball.base.Gizmo
      └ gizmoball.gizmos.Flipper
```

All Implemented Interfaces:
GameItem, GameXMLWriter

Direct Known Subclasses:
LeftFlipper, RightFlipper

```
public abstract class Flipperextends Gizmo
```

Flipper represents a mutable, rounded rectangular Gizmo. Flippers reflect Balls from their surface, and when triggered they move from one position to another position, sweeping an arc fixed at one of its ends A Flipper has a flag to determine which of the 4 sectors defined by the gizmo the anchor of the arc is. A Flipper also contains information about it's starting and ending sweep angle. A Flipper is anchored at x + 1.5*getX and it's other point makes a sweeping angle perpindicular to that point

Author:
David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

Flipper(java.lang.String name, int x, int y, int startAngle, int endAngle) Create a Flipper.

Method Summary

boolean	**collide**(Ball b, double secs) Handle a collision between a Gizmo and Ball.
double	**collisionTime**(Ball ball) Determine the time until a Gizmo and Ball collide.
void	**doAction**() Subclasses must implement this method to define the action they perform upon activation.
void	**draw**(java.awt.Graphics2D g) Draw a GameItem.
void	**drawBB**(java.awt.Graphics2D g, java.awt.Color c) Draw the bounding box of a GameItem.
double	**getCenterX**() The x coord of the center of the gizmo
double	**getCenterY**() The y coord of the center of the gizmo
java.lang.Iterable<BoardSector>	**getSectors**() Get all of the sectors a Flipper is over.
double	**getX**() The x coord
double	**getY**() The y coord
boolean	**isRotatable**() Whether or not the gizmo is rotatable
boolean	**overlapsWith**(Ball ball) Determine if a ball is overlapping with a gizmo.
boolean	**overSector**(int sx, int sy) Check if a Gizmo is over a given board sector.
void	**reset**() Resets a Gizmo.
void	**setPosition**(int x, int y)
void	**update**(double secs, Environment env) Update the state of the flipper.

Methods inherited from class gizmoball.base.Gizmo
addPressCode, addReleaseCode, addTarget, equals, eventWaiting, getName, getOrientation, getPressCodes, getPropertyNames, getPropertyValues, getReleaseCodes, getTargets, hashCode, hasTarget, keyPressed, keyReleased, pollScore, popEvent, popScore, receiveTrigger, removePressCode, removeReleaseCode, removeTarget, rotateCCW, rotateCW, setOrientation, setPropertyValues, triggerTargets

Methods inherited from class java.lang.Object
getClass, notify, notifyAll, toString, wait, wait, wait

Methods inherited from interface gizmoball.base.GameXMLWriter
toXML

Constructor Detail

Flipper

```
public Flipper(java.lang.String name,
               int x,
               int y,
               int startAngle,
               int endAngle)
```

Create a Flipper.

Effects:
Creates a Flipper named `name` at sector (`x`, `y`)

Returns:
the new Flipper.

Method Detail

setPosition

```
public void setPosition(int x,
                        int y)
```

Specified by:
`setPosition` in class `Gizmo`

---

reset

```
public void reset()
```

Resets a Gizmo.

Specified by:
`reset` in interface `GameItem`
Overrides:
`reset` in class `Gizmo`
Effects:
Resets all internal state.
Modifies:
this.

---

getX

```
public double getX()
```

The x coord

Specified by:
`getX` in class `Gizmo`
Returns:
X coordinate

---

getY

```
public double getY()
```

The y coord

Specified by:
`getY` in class `Gizmo`
Returns:
Y coordinate

getCenterX

`public double` **`getCenterX`**`()`

The x coord of the center of the gizmo

Overrides:
`getCenterX` in class `Gizmo`

---

getCenterY

`public double` **`getCenterY`**`()`

The y coord of the center of the gizmo

Overrides:
`getCenterY` in class `Gizmo`

---

getSectors

`public java.lang.Iterable<BoardSector>` **`getSectors`**`()`

Get all of the sectors a Flipper is over.

Returns:
an Iterable containing the BoardSector this BasicGizmo is over.

---

isRotatable

`public boolean` **`isRotatable`**`()`

Whether or not the gizmo is rotatable

Overrides:
`isRotatable` in class `Gizmo`
Returns:
true
See Also:
`rotateCW, rotateCCW, setOrientation`

---

overlapsWith

```
public boolean overlapsWith(Ball ball)
```

Determine if a ball is overlapping with a gizmo.

Specified by:
`overlapsWith` in class `Gizmo`

Returns:
true if `ball` overlaps with this gizmo. false otherwise.

---

collisionTime

```
public double collisionTime(Ball ball)
```

Determine the time until a Gizmo and Ball collide.

Specified by:
`collisionTime` in class `Gizmo`

Throws:
`java.lang.IllegalArgumentException` - if `ball` is null.

Returns:
The number of seconds until `ball` collides with this Gizmo if they will collide, Double.POSITIVE_INFINITY otherwise.

---

collide

```
public boolean collide(Ball b,
                       double secs)
```

Description copied from class: `Gizmo`
Handle a collision between a Gizmo and Ball.

Specified by:
`collide` in class `Gizmo`

---

overSector

```
public boolean overSector(int sx,
                          int sy)
```

Description copied from class: `Gizmo`
Check if a Gizmo is over a given board sector.

Specified by:
`overSector` in interface `GameItem`
Specified by:
`overSector` in class `Gizmo`

---

doAction

```
public void doAction()
```

Description copied from class: `Gizmo`
Subclasses must implement this method to define the action they perform upon activation.

---

update

```
public void update(double secs,
                   Environment env)
```

Update the state of the flipper.

Specified by:
`update` in interface `GameItem`
Overrides:
`update` in class `Gizmo`
Effects:
Increments the state of the flipper for `secs` seconds in a physical environment described by `env`.
Modifies:
this.

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Description copied from interface: `GameItem`
Draw a GameItem.

---

drawBB

```
public void drawBB(java.awt.Graphics2D g,
                   java.awt.Color c)
```

Description copied from interface: `GameItem`
Draw the bounding box of a GameItem.

Effects:

Draws the bounding box of this game item using `g`.

Modifies:

`g`.

---

gizmoball.gizmos

Class LeftFlipper

```
java.lang.Object
  └ gizmoball.base.Gizmo
      └ gizmoball.gizmos.Flipper
          └ gizmoball.gizmos.LeftFlipper
```

All Implemented Interfaces:

GameItem, GameXMLWriter

```
public class LeftFlipperextends Flipper
```

The left flipper gizmo is an implementation of Flipper anchored in the upper left, with a counterclockwise sweep

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

LeftFlipper(java.lang.String name, int x, int y, int orientation)

Method Summary

int	**getDx**() Defines the quadrant of the anchor point dx ==0 | dx ==1
int	**getDy**() Defines the quadrant of the anchor point dy ==0 | dy ==1
int	**getOrientation**() Gets the orientation of the flipper
void	**setOrientation**(int orientation) Sets the orienation of the flipper to the new orientation of 0,90,180,270
org.w3c.dom.Element	**toXML**(boolean compatible) Create an XML representation of a Gizmo.

Methods inherited from class gizmoball.gizmos.Flipper

collide, collisionTime, doAction, draw, drawBB, getCenterX, getCenterY, getSectors, getX, getY, isRotatable, overlapsWith, overSector, reset, setPosition, update

Methods inherited from class gizmoball.base.Gizmo

addPressCode, addReleaseCode, addTarget, equals, eventWaiting, getName, getPressCodes, getPropertyNames, getPropertyValues, getReleaseCodes, getTargets, hashCode, hasTarget, keyPressed, keyReleased, pollScore, popEvent, popScore, receiveTrigger, removePressCode, removeReleaseCode, removeTarget, rotateCCW, rotateCW, setPropertyValues, triggerTargets

Methods inherited from class java.lang.Object

getClass, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

LeftFlipper

```
public LeftFlipper(java.lang.String name,
                   int x,
                   int y,
                   int orientation)
```

Parameters:

`name` - The name of the Flipper
`x` - The x coordinate of the Flipper
`y` - The y coordinate of the Flipper
`orientation` - The Orientation (0,90,180,270) of the flipper

Method Detail

getDx

```
public int getDx()
```

Defines the quadrant of the anchor point dx ==0 | dx ==1

---

getDy

```
public int getDy()
```

Defines the quadrant of the anchor point dy ==0 | dy ==1

---

toXML

```
public org.w3c.dom.Element toXML(boolean compatible)
```

Create an XML representation of a Gizmo. The XML returned is a well-formed node.

Parameters:

`compatible` - Be strictly compatible with 6.170 schema

Returns:

the XML.

---

setOrientation

```
public void setOrientation(int orientation)
```

Sets the orienation of the flipper to the new orientation of 0,90,180,270

Overrides:
`setOrientation` in class `Gizmo`
Parameters:
`orientation` - The new orientation of the flipper
See Also:
`Gizmo.getOrientation()`

---

getOrientation

`public int` **`getOrientation`**`()`

Gets the orientation of the flipper

Overrides:
`getOrientation` in class `Gizmo`
Returns:
The orientation of the flipper
See Also:
`setOrientation`

---

gizmoball.gizmos

Class OuterWalls

```
java.lang.Object
  └ gizmoball.base.Gizmo
      └ gizmoball.gizmos.OuterWalls
```

All Implemented Interfaces:

GameItem, GameXMLWriter

```
public class OuterWallsextends Gizmo
```

OuterWalls represents the outer walls of the board. It has no action, though it can trigger other actions. It is not drawn. It has no state other than its triggers.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

OuterWalls() Constructs the OuterWalls; the name is always "OuterWalls".	

Method Summary

boolean	**collide**(Ball b, double secs) Handle a collision between a Gizmo and Ball.
double	**collisionTime**(Ball ball) Determine the time until a Gizmo and Ball collide.
void	**draw**(java.awt.Graphics2D g) Draw a GameItem.
void	**drawBB**(java.awt.Graphics2D g, java.awt.Color c) Draw the bounding box of a GameItem.
java.lang.Iterable<BoardSector>	**getSectors**() Get all of the sectors a Gizmo is over.
double	**getX**() Get this Gizmo's x position.
double	**getY**() Get this Gizmo's y position.
boolean	**overlapsWith**(Ball ball) Determine if a ball is overlapping with a gizmo.
boolean	**overSector**(int sectorX, int sectorY) Check if a Gizmo is over a given board sector.
void	**setPosition**(int x, int y)
org.w3c.dom.Element	**toXML**(boolean compatible) Create an XML representation of a Gizmo.

Methods inherited from class gizmoball.base.Gizmo

addPressCode, addReleaseCode, addTarget, equals, eventWaiting, getCenterX, getCenterY, getName, getOrientation, getPressCodes, getPropertyNames, getPropertyValues, getReleaseCodes, getTargets, hashCode, hasTarget, isRotatable, keyPressed, keyReleased, pollScore, popEvent, popScore, receiveTrigger, removePressCode, removeReleaseCode, removeTarget, reset, rotateCCW, rotateCW, setOrientation, setPropertyValues, triggerTargets, update

Methods inherited from class java.lang.Object
getClass, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

OuterWalls

public **OuterWalls**()

Constructs the OuterWalls; the name is always "OuterWalls".

Effects:
creates an OuterWalls named OuterWalls
Returns:
the new OuterWalls.

Method Detail

getX

public double **getX**()

Description copied from class: Gizmo
Get this Gizmo's x position.

Specified by:
getX in class Gizmo
Returns:
X coordinate

---

getY

public double **getY**()

Description copied from class: Gizmo
Get this Gizmo's y position.

Specified by:
getY in class Gizmo
Returns:
Y coordinate

setPosition

```
public void setPosition(int x,
                        int y)
```

Specified by:
`setPosition` in class `Gizmo`

---

overSector

```
public boolean overSector(int sectorX,
                          int sectorY)
```

Check if a Gizmo is over a given board sector.

Specified by:
`overSector` in interface `GameItem`
Specified by:
`overSector` in class `Gizmo`
Returns:
if this Gizmo is over the sector at (sectorX, sectorY).

---

overlapsWith

```
public boolean overlapsWith(Ball ball)
```

Determine if a ball is overlapping with a gizmo.

Specified by:
`overlapsWith` in class `Gizmo`
Returns:
true if `ball` overlaps with this gizmo. false otherwise.

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Description copied from interface: `GameItem`
Draw a GameItem.

Effects:
Draws this Gizmo using `g`. But it's invisible.
Modifies:
`g`

drawBB

```
public void drawBB(java.awt.Graphics2D g,
                   java.awt.Color c)
```

Description copied from interface: `GameItem`
Draw the bounding box of a GameItem.

Effects:
Draws the bounding box of this game item using `g`.
Modifies:
`g`.

---

getSectors

```
public java.lang.Iterable<BoardSector> getSectors()
```

Get all of the sectors a Gizmo is over. None in this case.

Returns:
an Iterator containing no BoardSectors.

---

collisionTime

```
public double collisionTime(Ball ball)
```

Determine the time until a Gizmo and Ball collide.

Specified by:
`collisionTime` in class `Gizmo`
Throws:
`java.lang.IllegalArgumentException` - if `ball` is null.
Returns:
The number of seconds until `ball` collides with this Gizmo if they will collide, Double.POSITIVE_INFINITY otherwise.

---

collide

```
public boolean collide(Ball b,
                       double secs)
```

Handle a collision between a Gizmo and Ball.

Specified by:
`collide` in class `Gizmo`

Throws:

`java.lang.IllegalArgumentException` - if b == null

Effects:

if b will collide with g in secs seconds then make the Gizmo active, make the Gizmo's target (if any) active, set the reflected velocity of `b`.

Modifies:

this, b

Returns:

true if Ball `b` will collide with this gizmo in `msecs` milliseconds or less, false otherwise.

---

toXML

`public org.w3c.dom.Element` **`toXML`**`(boolean compatible)`

Create an XML representation of a Gizmo. The XML returned is a well-formed node.

Parameters:

`compatible` - Be strictly compatible with 6.170 schema

Returns:

the XML.

---

gizmoball.gizmos

Class RightFlipper

```
java.lang.Object
  └ gizmoball.base.Gizmo
      └ gizmoball.gizmos.Flipper
          └ gizmoball.gizmos.RightFlipper
```

All Implemented Interfaces:

GameItem, GameXMLWriter

```
public class RightFlipperextends Flipper
```

The right flipper gizmo is an implementation of Flipper anchored in the upper right, with a clockwise sweep

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

RightFlipper(java.lang.String name, int x, int y, int orientation)

Method Summary

int	**getDx**() Defines the quadrant of the anchor point dx ==0 | dx ==1
int	**getDy**() Defines the quadrant of the anchor point dy ==0 | dy ==1
int	**getOrientation**() Gets the orientation of the flipper
void	**setOrientation**(int orientation) Sets the orienation of the flipper to the new orientation of 0,90,180,270
org.w3c.dom.Element	**toXML**(boolean compatible) Create an XML representation of a Gizmo.

Methods inherited from class gizmoball.gizmos.Flipper

collide, collisionTime, doAction, draw, drawBB, getCenterX, getCenterY, getSectors, getX, getY, isRotatable, overlapsWith, overSector, reset, setPosition, update

Methods inherited from class gizmoball.base.Gizmo

addPressCode, addReleaseCode, addTarget, equals, eventWaiting, getName, getPressCodes, getPropertyNames, getPropertyValues, getReleaseCodes, getTargets, hashCode, hasTarget, keyPressed, keyReleased, pollScore, popEvent, popScore, receiveTrigger, removePressCode, removeReleaseCode, removeTarget, rotateCCW, rotateCW, setPropertyValues, triggerTargets

Methods inherited from class java.lang.Object

getClass, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

RightFlipper

```
public RightFlipper(java.lang.String name,
                    int x,
                    int y,
                    int orientation)
```

Parameters:

`name` - The name of the Flipper
`x` - The x coordinate of the Flipper
`y` - The y coordinate of the Flipper
`orientation` - The Orientation (0,90,180,270) of the flipper

Method Detail

getDx

```
public int getDx()
```

Defines the quadrant of the anchor point dx ==0 | dx ==1

---

getDy

```
public int getDy()
```

Defines the quadrant of the anchor point dy ==0 | dy ==1

---

toXML

```
public org.w3c.dom.Element toXML(boolean compatible)
```

Create an XML representation of a Gizmo. The XML returned is a well-formed node.

Parameters:

`compatible` - Be strictly compatible with 6.170 schema

Returns:

the XML.

---

setOrientation

```
public void setOrientation(int orientation)
```

Sets the orienation of the flipper to the new orientation of 0,90,180,270

Overrides:
`setOrientation` in class `Gizmo`
Parameters:
`orientation` - The new orientation of the flipper
See Also:
`Gizmo.getOrientation()`

---

getOrientation

`public int` **`getOrientation`**`()`

Gets the orientation of the flipper

Overrides:
`getOrientation` in class `Gizmo`
Returns:
The orientation of the flipper
See Also:
`setOrientation`

---

gizmoball.gizmos

Class Shocker

```
java.lang.Object
  └ gizmoball.base.Gizmo
      └ gizmoball.gizmos.BasicGizmo
          └ gizmoball.gizmos.CircleBumper
              └ gizmoball.gizmos.Shocker
```

All Implemented Interfaces:

GameItem, GameXMLWriter

```
public class Shockerextends CircleBumper
```

Shocker represents a mutable, circular Gizmo. Shockers reflect Balls from their surface and release a ShockWave when they are triggered; A Shocker is centered at (x+0.5L, y+0.5L) and has a radius of 0.5L.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

Shocker(java.lang.String name, int x, int y, double width, double speed, double amplitude) Create a Shocker.

Method Summary

boolean	**eventWaiting**() See if the Gizmo is waiting to act.
java.util.List<java.lang.String>	**getPropertyNames**() Get the names of a gizmo's properties.
java.util.List<java.lang.String>	**getPropertyValues**() Get the values of a gizmo's properties.
GameEvent	**popEvent**() Get the an event waiting to be happen from the stack.
void	**setPropertyValues**(java.util.List<java.lang.String> values) Get the values of a gizmo's properties.
org.w3c.dom.Element	**toXML**(boolean compatible) Create an XML representation of a Gizmo.

Methods inherited from class gizmoball.gizmos.CircleBumper

draw, overlapsWith, pollScore, popScore, reset, update

Methods inherited from class gizmoball.gizmos.BasicGizmo

collide, collisionTime, drawBB, getSectors, getX, getY, overSector, setPosition

Methods inherited from class gizmoball.base.Gizmo

addPressCode, addReleaseCode, addTarget, equals, getCenterX, getCenterY, getName, getOrientation, getPressCodes, getReleaseCodes, getTargets, hashCode, hasTarget, isRotatable, keyPressed, keyReleased, receiveTrigger, removePressCode, removeReleaseCode, removeTarget, rotateCCW, rotateCW, setOrientation, triggerTargets

Methods inherited from class java.lang.Object
getClass, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

Shocker

```
public Shocker(java.lang.String name,
               int x,
               int y,
               double width,
               double speed,
               double amplitude)
```

Create a Shocker. The created shocker will be named `name` located at (`x`,`y`). It will release shockwaves of radial width `width` secotrs, that travel at `speed` sectors/sec and have outward gravitational component `amplitude`.

Returns:
the new Shocker.

Method Detail

eventWaiting

```
public boolean eventWaiting()
```

Description copied from class: `Gizmo`
See if the Gizmo is waiting to act.

Overrides:
`eventWaiting` in class `Gizmo`

Returns:
true if this gizmo is waiting to initiate a game event, false otherwise.

---

popEvent

```
public GameEvent popEvent()
```

Description copied from class: `Gizmo`
Get the an event waiting to be happen from the stack.

Overrides:
`popEvent` in class `Gizmo`
Effects:
If this gizmo is waiting to initiate one or more game events, remove and return one such game event.
Returns:
If this.eventWaiting() then the event that has been removed, else null

---

getPropertyNames

```
public java.util.List<java.lang.String> getPropertyNames()
```

Get the names of a gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Overrides:
`getPropertyNames` in class `Gizmo`
Returns:
an ordered list of property names.

---

getPropertyValues

```
public java.util.List<java.lang.String> getPropertyValues()
```

Get the values of a gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Overrides:
`getPropertyValues` in class `Gizmo`
Returns:
an ordered list of property values as Strings.

---

setPropertyValues

```
public void setPropertyValues(java.util.List<java.lang.String> values)
                       throws GizmoPropertyException
```

Get the values of a gizmo's properties. Subclasses may override this method, but must make use of it for the superclass properties.

Overrides:
`setPropertyValues` in class `Gizmo`

Throws:

`java.lang.IllegalArgumentException` - if the size of `values` does not match the size of the list returned by getPropertyNames().

`GizmoPropertyException`

Effects:

newthis.getPropertyValues == `values`

Modifies:

this

---

toXML

```
public org.w3c.dom.Element toXML(boolean compatible)
```

Create an XML representation of a Gizmo. The XML returned is a well-formed node.

Specified by:

`toXML` in interface `GameXMLWriter`

Overrides:

`toXML` in class `CircleBumper`

Parameters:

`compatible` - Be strictly compatible with 6.170 schema

Returns:

the XML.

---

gizmoball.gizmos

Class SquareBumper

```
java.lang.Object
  └ gizmoball.base.Gizmo
      └ gizmoball.gizmos.BasicGizmo
          └ gizmoball.gizmos.SquareBumper
```

All Implemented Interfaces:

GameItem, GameXMLWriter

Direct Known Subclasses:

BreakawaySquareBumper

```
public class SquareBumperextends BasicGizmo
```

SquareBumper represents a mutable, square Gizmo. SquareBumpers reflect Balls from their surface but perform no action when they are triggered. A SquareBumper is centered at (x + 0.5L, y + 0.5L) and has corners at (x [+ 1L], y [+ 1L]).

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

SquareBumper(java.lang.String name, int x, int y) Create a SquareBumper.	

Method Summary

void	**draw**(java.awt.Graphics2D g) Draw a GameItem.
boolean	**overlapsWith**(Ball ball) Determine if a ball is overlapping with a gizmo.
int	**pollScore**() Returns the score since that last popScore without modyfing the score
int	**popScore**() Returns the score since that last popScore and clears the score
org.w3c.dom.Element	**toXML**(boolean compatible) Create an XML representation of a Gizmo.

Methods inherited from class gizmoball.gizmos.BasicGizmo

collide, collisionTime, drawBB, getSectors, getX, getY, overSector, setPosition

Methods inherited from class gizmoball.base.Gizmo

addPressCode, addReleaseCode, addTarget, equals, eventWaiting, getCenterX, getCenterY, getName, getOrientation, getPressCodes, getPropertyNames, getPropertyValues, getReleaseCodes, getTargets, hashCode, hasTarget, isRotatable, keyPressed, keyReleased, popEvent, receiveTrigger, removePressCode, removeReleaseCode, removeTarget, reset, rotateCCW, rotateCW, setOrientation, setPropertyValues, triggerTargets, update

Methods inherited from class java.lang.Object

getClass, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

SquareBumper

```
public SquareBumper(java.lang.String name,
                    int x,
                    int y)
```

Create a SquareBumper.

Effects:
Creates a SquareBumper named `name` at sector (`x`,`y`).

Returns:
the new SquareBumper.

Method Detail

overlapsWith

```
public boolean overlapsWith(Ball ball)
```

Determine if a ball is overlapping with a gizmo.

Specified by:
`overlapsWith` in class `Gizmo`

Returns:
true if `ball` overlaps with this gizmo. false otherwise.

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Description copied from interface: `GameItem`
Draw a GameItem.

---

toXML

```
public org.w3c.dom.Element toXML(boolean compatible)
```

Create an XML representation of a Gizmo. The XML returned is a well-formed node.

Parameters:
`compatible` - Be strictly compatible with 6.170 schema

Returns:
the XML.

pollScore

`public int` **`pollScore`**`()`

Returns the score since that last popScore without modyfing the score

Overrides:
`pollScore` in class `Gizmo`

popScore

`public int` **`popScore`**`()`

Returns the score since that last popScore and clears the score

Overrides:
`popScore` in class `Gizmo`

---

gizmoball.gizmos

Class TriangleBumper

```
java.lang.Object
  └ gizmoball.base.Gizmo
      └ gizmoball.gizmos.BasicGizmo
          └ gizmoball.gizmos.TriangleBumper
```

All Implemented Interfaces:

GameItem, GameXMLWriter

```
public class TriangleBumperextends BasicGizmo
```

TriangleBumper represents a mutable, triangle Gizmo. TriangleBumpers reflect Balls from their surface but perform no action when they are triggered. A TriangleBumper is centered at (x + 0.5L, y + 0.5L) and has corners at three of the points (x [+ 1L], y [+ 1L]), depending on orientation. The orientations of the triangle bumper look like: ORIENTATION_0:

```
x-x
|/
x
```

ORIENTATION_90:

```
x-x
 \|
  x
```

ORIENTATION_180:

```
  x
 /|
x-x
```

ORIENTATION_270:

```
x
|\
x-x
```

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Field Summary

static int	**ORIENTATION_0**
static int	**ORIENTATION_180**
static int	**ORIENTATION_270**
static int	**ORIENTATION_90**

Constructor Summary

TriangleBumper(java.lang.String name, int x, int y, int orientation) Create a TriangleBumper.

Method Summary

void	**draw**(java.awt.Graphics2D g) Draw a GameItem.
int	**getOrientation**() Get the gizmo orientation.
boolean	**isRotatable**() Whether or not the gizmo is rotatable
boolean	**overlapsWith**(Ball ball) Determine if a ball is overlapping with a gizmo.
int	**pollScore**() Returns the score since that last popScore without modyfing the score
int	**popScore**() Returns the score since that last popScore and clears the score
void	**setOrientation**(int degrees) Set the gizmo orientation.
org.w3c.dom.Element	**toXML**(boolean compatible) Create an XML representation of a Gizmo.

Methods inherited from class gizmoball.gizmos.BasicGizmo
collide, collisionTime, drawBB, getSectors, getX, getY, overSector, setPosition

Methods inherited from class gizmoball.base.Gizmo
addPressCode, addReleaseCode, addTarget, equals, eventWaiting, getCenterX, getCenterY, getName, getPressCodes, getPropertyNames, getPropertyValues, getReleaseCodes, getTargets, hashCode, hasTarget, keyPressed, keyReleased, popEvent, receiveTrigger, removePressCode, removeReleaseCode, removeTarget, reset, rotateCCW, rotateCW, setPropertyValues, triggerTargets, update

Methods inherited from class java.lang.Object
getClass, notify, notifyAll, toString, wait, wait, wait

Field Detail

ORIENTATION_0

public static final int **ORIENTATION_0**

See Also:
Constant Field Values

ORIENTATION_90

public static final int **ORIENTATION_90**

See Also:
Constant Field Values

ORIENTATION_180

```
public static final int ORIENTATION_180
```

See Also:
Constant Field Values

ORIENTATION_270

```
public static final int ORIENTATION_270
```

See Also:
Constant Field Values

Constructor Detail

TriangleBumper

```
public TriangleBumper(java.lang.String name,
                      int x,
                      int y,
                      int orientation)
```

Create a TriangleBumper.

Effects:
Creates a TriangleBumper named `name` at sector (`x`,`y`) with orientation `orientation`.
Returns:
the new TriangleBumper.

Method Detail

setOrientation

```
public void setOrientation(int degrees)
```

Set the gizmo orientation.

Overrides:
`setOrientation` in class `Gizmo`
Throws:
`java.lang.IllegalArgumentException` - if `degrees` is not one of {0, 90, 180, 270}.
See Also:
`getOrientation()`

Effects:
if `degrees` is a possible orientation then sets the orientation of this gizmo to `degrees`.
Modifies:
this.

---

getOrientation

`public int` **`getOrientation`**`()`

Get the gizmo orientation.

Overrides:
`getOrientation` in class `Gizmo`
See Also:
`setOrientation`
Returns:
the orientation of this gizmo.

---

isRotatable

`public boolean` **`isRotatable`**`()`

Whether or not the gizmo is rotatable

Overrides:
`isRotatable` in class `Gizmo`
Returns:
true
See Also:
`rotateCW, rotateCCW, setOrientation`

---

overlapsWith

`public boolean` **`overlapsWith`**`(Ball ball)`

Determine if a ball is overlapping with a gizmo.

Specified by:
`overlapsWith` in class `Gizmo`
Returns:
true if `ball` overlaps with this gizmo. false otherwise.

---

draw

```
public void draw(java.awt.Graphics2D g)
```

Description copied from interface: `GameItem`
Draw a GameItem.

---

toXML

```
public org.w3c.dom.Element toXML(boolean compatible)
```

Create an XML representation of a Gizmo. The XML returned is a well-formed node.

Parameters:
`compatible` - Be strictly compatible with 6.170 schema
Returns:
the XML.

---

pollScore

```
public int pollScore()
```

Returns the score since that last popScore without modyfing the score

Overrides:
`pollScore` in class `Gizmo`

---

popScore

```
public int popScore()
```

Returns the score since that last popScore and clears the score

Overrides:
`popScore` in class `Gizmo`

---

gizmoball.ui
Class BallPropertyEditor

```
java.lang.Object
  └ java.awt.Component
      └ java.awt.Container
          └ java.awt.Window
              └ java.awt.Dialog
                  └ javax.swing.JDialog
                      └ gizmoball.ui.BallPropertyEditor
```

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.Accessible, javax.swing.RootPaneContainer, javax.swing.WindowConstants

---

```
public class BallPropertyEditorextends javax.swing.JDialog
```

The BallPropertyEditor class is responsible for taking a ball and modifying it's properties. **RI:** myBall != null

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

See Also:

`Ball.setVelocity()`, Serialized Form

Field Summary

Fields inherited from class java.awt.Component
BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT, TOP_ALIGNMENT

Fields inherited from interface javax.swing.WindowConstants
DISPOSE_ON_CLOSE, DO_NOTHING_ON_CLOSE, EXIT_ON_CLOSE, HIDE_ON_CLOSE

Fields inherited from interface java.awt.image.ImageObserver
ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH

Constructor Summary

BallPropertyEditor(Ball b) Creates a BallProperty Editor Dialog.	

Method Summary

Methods inherited from class javax.swing.JDialog
getAccessibleContext, getContentPane, getDefaultCloseOperation, getGlassPane, getJMenuBar, getLayeredPane, getRootPane, isDefaultLookAndFeelDecorated, remove, setContentPane, setDefaultCloseOperation, setDefaultLookAndFeelDecorated, setGlassPane, setJMenuBar, setLayeredPane, setLayout, update

Methods inherited from class java.awt.Dialog
addNotify, getTitle, hide, isModal, isResizable, isUndecorated, setModal, setResizable, setTitle, setUndecorated, show

Methods inherited from class java.awt.Window

addPropertyChangeListener, addPropertyChangeListener, addWindowFocusListener, addWindowListener, addWindowStateListener, applyResourceBundle, applyResourceBundle, createBufferStrategy, createBufferStrategy, dispose, getBufferStrategy, getFocusableWindowState, getFocusCycleRootAncestor, getFocusOwner, getFocusTraversalKeys, getGraphicsConfiguration, getInputContext, getListeners, getLocale, getMostRecentFocusOwner, getOwnedWindows, getOwner, getToolkit, getWarningString, getWindowFocusListeners, getWindowListeners, getWindowStateListeners, isActive, isAlwaysOnTop, isFocusableWindow, isFocusCycleRoot, isFocused, isLocationByPlatform, isShowing, pack, postEvent, removeWindowFocusListener, removeWindowListener, removeWindowStateListener, setAlwaysOnTop, setBounds, setCursor, setFocusableWindowState, setFocusCycleRoot, setLocationByPlatform, setLocationRelativeTo, toBack, toFront

Methods inherited from class java.awt.Container

add, add, add, add, add, addContainerListener, applyComponentOrientation, areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt, findComponentAt, getAlignmentX, getAlignmentY, getComponent, getComponentAt, getComponentAt, getComponentCount, getComponents, getComponentZOrder, getContainerListeners, getFocusTraversalPolicy, getInsets, getLayout, getMaximumSize, getMinimumSize, getMousePosition, getPreferredSize, insets, invalidate, isAncestorOf, isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout, list, list, locate, minimumSize, paint, paintComponents, preferredSize, print, printComponents, remove, removeAll, removeContainerListener, removeNotify, setComponentZOrder, setFocusTraversalKeys, setFocusTraversalPolicy, setFocusTraversalPolicyProvider, setFont, transferFocusBackward, transferFocusDownCycle, validate

Methods inherited from class java.awt.Component

action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener, addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener, addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage, contains, contains, createImage, createImage, createVolatileImage, createVolatileImage, disable, dispatchEvent, enable, enable, enableInputMethods, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, getBackground, getBounds, getBounds, getColorModel, getComponentListeners, getComponentOrientation, getCursor, getDropTarget, getFocusListeners, getFocusTraversalKeysEnabled, getFont, getFontMetrics, getForeground, getGraphics, getHeight, getHierarchyBoundsListeners, getHierarchyListeners, getIgnoreRepaint, getInputMethodListeners, getInputMethodRequests, getKeyListeners, getLocation, getLocation, getLocationOnScreen, getMouseListeners, getMouseMotionListeners, getMousePosition, getMouseWheelListeners, getName, getParent, getPeer, getPropertyChangeListeners, getPropertyChangeListeners, getSize, getSize, getTreeLock, getWidth, getX, getY, gotFocus, handleEvent, hasFocus, imageUpdate, inside, isBackgroundSet, isCursorSet, isDisplayable, isDoubleBuffered, isEnabled, isFocusable, isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet, isLightweight, isMaximumSizeSet, isMinimumSizeSet, isOpaque, isPreferredSizeSet, isValid, isVisible, keyDown, keyUp, list, list, list, location, lostFocus, mouseDown, mouseDrag, mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll, prepareImage, prepareImage, printAll, remove, removeComponentListener, removeFocusListener, removeHierarchyBoundsListener, removeHierarchyListener, removeInputMethodListener, removeKeyListener, removeMouseListener, removeMouseMotionListener, removeMouseWheelListener, removePropertyChangeListener, removePropertyChangeListener, repaint, repaint, repaint, repaint, requestFocus, requestFocusInWindow, reshape, resize, resize, setBackground, setBounds, setComponentOrientation, setDropTarget, setEnabled, setFocusable, setFocusTraversalKeysEnabled, setForeground, setIgnoreRepaint, setLocale, setLocation, setLocation, setMaximumSize, setMinimumSize, setName, setPreferredSize, setSize, setSize, setVisible, show, size, toString, transferFocus, transferFocusUpCycle

Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, wait, wait, wait

Constructor Detail

BallPropertyEditor

```
public BallPropertyEditor(Ball b)
```

Creates a BallProperty Editor Dialog. Sets the current ball to be b.

Parameters:

`b` - The ball being edited by this dialog.

---

gizmoball.ui

Class GizmoBoard

```
java.lang.Object
  └ java.awt.Component
      └ java.awt.Container
          └ javax.swing.JComponent
              └ javax.swing.JPanel
                  └ gizmoball.ui.GizmoBoard
```

All Implemented Interfaces:

java.awt.event.KeyListener, java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, java.util.EventListener, javax.accessibility.Accessible

---

```
public class GizmoBoardextends javax.swing.JPanelimplements java.awt.image.ImageObserver, java.awt.event.KeyListener
```

The GizmoBoard handles the actual graphics display of GizmoBall, andpasses Keyboard events to Gizmo Window.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

See Also:

Serialized Form

Nested Class Summary

Nested classes/interfaces inherited from class javax.swing.JComponent
javax.swing.JComponent.AccessibleJComponent

Field Summary

static int	**MY_HEIGHT**
static int	**MY_WIDTH**
static long	**serialVersionUID**
static java.net.URL	**TARGET_IMAGE_URL**

Fields inherited from class javax.swing.JComponent

TOOL_TIP_TEXT_KEY, UNDEFINED_CONDITION, WHEN_ANCESTOR_OF_FOCUSED_COMPONENT, WHEN_FOCUSED, WHEN_IN_FOCUSED_WINDOW

Fields inherited from class java.awt.Component

BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT, TOP_ALIGNMENT

Fields inherited from interface java.awt.image.ImageObserver

ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH

Constructor Summary

GizmoBoard(GizmoWindow gw) Creates a new GizmoBoard.	

Method Summary

GizmoGame	**getGame**() Gets the current Game
Ball	**getSelectedBall**() Gets the Selected Ball
Gizmo	**getSelectedGizmo**() Gets the selected Gizmo.
void	**init**() Initiates the drawing area
void	**keyPressed**(java.awt.event.KeyEvent e) Handles keyPress events
void	**keyReleased**(java.awt.event.KeyEvent e) Handles keyRelease events
void	**keyTyped**(java.awt.event.KeyEvent e) Handles keyType events
void	**paintComponent**(java.awt.Graphics g) Paints the Board
void	**setEditMode**() Switches to edit mode with the specified level.
void	**setGame**(GizmoGame gg) Sets the current GizmoGAme to be gg
void	**setGameMode**() Switches to game mode with the specified game.
void	**setSelection**(GameItem g) Sets the current selected item to g.

Methods inherited from class javax.swing.JPanel
getAccessibleContext, getUI, getUIClassID, setUI, updateUI

Methods inherited from class javax.swing.JComponent

addAncestorListener, addNotify, addVetoableChangeListener, computeVisibleRect, contains, createToolTip, disable, enable, firePropertyChange, firePropertyChange, firePropertyChange, getActionForKeyStroke, getActionMap, getAlignmentX, getAlignmentY, getAncestorListeners, getAutoscrolls, getBorder, getBounds, getClientProperty, getComponentPopupMenu, getConditionForKeyStroke, getDebugGraphicsOptions, getDefaultLocale, getFontMetrics, getGraphics, getHeight, getInheritsPopupMenu, getInputMap, getInputMap, getInputVerifier, getInsets, getInsets, getListeners, getLocation, getMaximumSize, getMinimumSize, getNextFocusableComponent, getPopupLocation, getPreferredSize, getRegisteredKeyStrokes, getRootPane, getSize, getToolTipLocation, getToolTipText, getToolTipText, getTopLevelAncestor, getTransferHandler, getVerifyInputWhenFocusTarget, getVetoableChangeListeners, getVisibleRect, getWidth, getX, getY, grabFocus, isDoubleBuffered, isLightweightComponent, isManagingFocus, isOpaque, isOptimizedDrawingEnabled, isPaintingTile, isRequestFocusEnabled, isValidateRoot, paint, paintImmediately, paintImmediately, print, printAll, putClientProperty, registerKeyboardAction, registerKeyboardAction, removeAncestorListener, removeNotify, removeVetoableChangeListener, repaint, repaint, requestDefaultFocus, requestFocus, requestFocus, requestFocusInWindow, resetKeyboardActions, reshape, revalidate, scrollRectToVisible, setActionMap, setAlignmentX, setAlignmentY, setAutoscrolls, setBackground, setBorder, setComponentPopupMenu, setDebugGraphicsOptions, setDefaultLocale, setDoubleBuffered, setEnabled, setFocusTraversalKeys, setFont, setForeground, setInheritsPopupMenu, setInputMap, setInputVerifier, setMaximumSize, setMinimumSize, setNextFocusableComponent, setOpaque, setPreferredSize, setRequestFocusEnabled, setToolTipText, setTransferHandler, setVerifyInputWhenFocusTarget, setVisible, unregisterKeyboardAction, update

Methods inherited from class java.awt.Container
add, add, add, add, add, addContainerListener, addPropertyChangeListener, addPropertyChangeListener, applyComponentOrientation, areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt, findComponentAt, getComponent, getComponentAt, getComponentAt, getComponentCount, getComponents, getComponentZOrder, getContainerListeners, getFocusTraversalKeys, getFocusTraversalPolicy, getLayout, getMousePosition, insets, invalidate, isAncestorOf, isFocusCycleRoot, isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout, list, list, locate, minimumSize, paintComponents, preferredSize, printComponents, remove, remove, removeAll, removeContainerListener, setComponentZOrder, setFocusCycleRoot, setFocusTraversalPolicy, setFocusTraversalPolicyProvider, setLayout, transferFocusBackward, transferFocusDownCycle, validate

Methods inherited from class java.awt.Component
action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener, addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener, addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage, contains, createImage, createImage, createVolatileImage, createVolatileImage, dispatchEvent, enable, enableInputMethods, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, getBackground, getBounds, getColorModel, getComponentListeners, getComponentOrientation, getCursor, getDropTarget, getFocusCycleRootAncestor, getFocusListeners, getFocusTraversalKeysEnabled, getFont, getForeground, getGraphicsConfiguration, getHierarchyBoundsListeners, getHierarchyListeners, getIgnoreRepaint, getInputContext, getInputMethodListeners, getInputMethodRequests, getKeyListeners, getLocale, getLocation, getLocationOnScreen, getMouseListeners, getMouseMotionListeners, getMousePosition, getMouseWheelListeners, getName, getParent, getPeer, getPropertyChangeListeners, getPropertyChangeListeners, getSize, getToolkit, getTreeLock, gotFocus, handleEvent, hasFocus, hide, imageUpdate, inside, isBackgroundSet, isCursorSet, isDisplayable, isEnabled, isFocusable, isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet, isLightweight, isMaximumSizeSet, isMinimumSizeSet, isPreferredSizeSet, isShowing, isValid, isVisible, keyDown, keyUp, list, list, list, location, lostFocus, mouseDown, mouseDrag, mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll, postEvent, prepareImage, prepareImage, remove, removeComponentListener, removeFocusListener, removeHierarchyBoundsListener, removeHierarchyListener, removeInputMethodListener, removeKeyListener, removeMouseListener, removeMouseMotionListener, removeMouseWheelListener, removePropertyChangeListener, removePropertyChangeListener, repaint, repaint, repaint, resize, resize, setBounds, setBounds, setComponentOrientation, setCursor, setDropTarget, setFocusable, setFocusTraversalKeysEnabled, setIgnoreRepaint, setLocale, setLocation, setLocation, setName, setSize, setSize, show, show, size, toString, transferFocus, transferFocusUpCycle

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, wait, wait, wait

Methods inherited from interface java.awt.image.ImageObserver
imageUpdate

Field Detail

serialVersionUID

```
public static final long serialVersionUID
```

See Also:
Constant Field Values

MY_WIDTH

```
public static int MY_WIDTH
```

MY_HEIGHT

```
public static int MY_HEIGHT
```

TARGET_IMAGE_URL

```
public static java.net.URL TARGET_IMAGE_URL
```

Constructor Detail

GizmoBoard

```
public GizmoBoard(GizmoWindow gw)
```

Creates a new GizmoBoard.

Parameters:
gw - The GizmoWindow to create the board in.

Method Detail

setSelection

```
public void setSelection(GameItem g)
```

Sets the current selected item to g.

Parameters:
g - The new GameItem
Effects:
selectedGizmo, selectedBall. if(g != (Gizmo)) selectedGizmo == null. if(g != (Ball)) selectedBall == null.

---

getSelectedGizmo

```
public Gizmo getSelectedGizmo()
```

Gets the selected Gizmo.

Returns:
selectedGizmo

---

getSelectedBall

```
public Ball getSelectedBall()
```

Gets the Selected Ball

Returns:
selectedBall

---

getGame

```
public GizmoGame getGame()
```

Gets the current Game

Returns:
currentGame

---

setGame

```
public void setGame(GizmoGame gg)
```

Sets the current GizmoGAme to be gg

Parameters:
`gg` - the new GizmoGame
Effects:
currentGame = gg

---

setGameMode

```
public void setGameMode()
```

Switches to game mode with the specified `game`.

---

setEditMode

```
public void setEditMode()
```

Switches to edit mode with the specified `level`.

---

paintComponent

```
public void paintComponent(java.awt.Graphics g)
```

Paints the Board

Overrides:
`paintComponent` in class `javax.swing.JComponent`

---

init

```
public void init()
```

Initiates the drawing area

---

keyPressed

```
public void keyPressed(java.awt.event.KeyEvent e)
```

Handles keyPress events

Specified by:
`keyPressed` in interface `java.awt.event.KeyListener`

keyTyped

```
public void keyTyped(java.awt.event.KeyEvent e)
```

Handles keyType events

Specified by:
`keyTyped` in interface `java.awt.event.KeyListener`

keyReleased

```
public void keyReleased(java.awt.event.KeyEvent e)
```

Handles keyRelease events

Specified by:
`keyReleased` in interface `java.awt.event.KeyListener`

gizmoball.ui
Class GizmoConnectionsDialog

```
java.lang.Object
  └ java.awt.Component
      └ java.awt.Container
          └ java.awt.Window
              └ java.awt.Dialog
                  └ javax.swing.JDialog
                      └ gizmoball.ui.GizmoConnectionsDialog
```

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.Accessible, javax.swing.RootPaneContainer, javax.swing.WindowConstants

---

```
public class GizmoConnectionsDialogextends javax.swing.JDialog
```

This Class is responsible for connecting Key Event signals to a gizmo, it can also delete Key Event signals from the selected gizmo. **RI:** gizmo != null

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

See Also:

Serialized Form

Field Summary

Fields inherited from class java.awt.Component
BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT, TOP_ALIGNMENT

Fields inherited from interface javax.swing.WindowConstants
DISPOSE_ON_CLOSE, DO_NOTHING_ON_CLOSE, EXIT_ON_CLOSE, HIDE_ON_CLOSE

Fields inherited from interface java.awt.image.ImageObserver
ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH

Constructor Summary

GizmoConnectionsDialog(Gizmo gizmo) Creates a GizmoConnectionsDialog for the gizmo.	

Method Summary

void	**keyGrabbed**(KeyGrabberDialog dialog, int keyCode) Passes a key back to the Dialog, and closes the KeyGrabber

Methods inherited from class javax.swing.JDialog
getAccessibleContext, getContentPane, getDefaultCloseOperation, getGlassPane, getJMenuBar, getLayeredPane, getRootPane, isDefaultLookAndFeelDecorated, remove, setContentPane, setDefaultCloseOperation, setDefaultLookAndFeelDecorated, setGlassPane, setJMenuBar, setLayeredPane, setLayout, update

Methods inherited from class java.awt.Dialog
addNotify, getTitle, hide, isModal, isResizable, isUndecorated, setModal, setResizable, setTitle, setUndecorated, show

Methods inherited from class java.awt.Window

addPropertyChangeListener, addPropertyChangeListener, addWindowFocusListener, addWindowListener, addWindowStateListener, applyResourceBundle, applyResourceBundle, createBufferStrategy, createBufferStrategy, dispose, getBufferStrategy, getFocusableWindowState, getFocusCycleRootAncestor, getFocusOwner, getFocusTraversalKeys, getGraphicsConfiguration, getInputContext, getListeners, getLocale, getMostRecentFocusOwner, getOwnedWindows, getOwner, getToolkit, getWarningString, getWindowFocusListeners, getWindowListeners, getWindowStateListeners, isActive, isAlwaysOnTop, isFocusableWindow, isFocusCycleRoot, isFocused, isLocationByPlatform, isShowing, pack, postEvent, removeWindowFocusListener, removeWindowListener, removeWindowStateListener, setAlwaysOnTop, setBounds, setCursor, setFocusableWindowState, setFocusCycleRoot, setLocationByPlatform, setLocationRelativeTo, toBack, toFront

Methods inherited from class java.awt.Container

add, add, add, add, add, addContainerListener, applyComponentOrientation, areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt, findComponentAt, getAlignmentX, getAlignmentY, getComponent, getComponentAt, getComponentAt, getComponentCount, getComponents, getComponentZOrder, getContainerListeners, getFocusTraversalPolicy, getInsets, getLayout, getMaximumSize, getMinimumSize, getMousePosition, getPreferredSize, insets, invalidate, isAncestorOf, isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout, list, list, locate, minimumSize, paint, paintComponents, preferredSize, print, printComponents, remove, removeAll, removeContainerListener, removeNotify, setComponentZOrder, setFocusTraversalKeys, setFocusTraversalPolicy, setFocusTraversalPolicyProvider, setFont, transferFocusBackward, transferFocusDownCycle, validate

Methods inherited from class java.awt.Component

action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener, addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener, addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage, contains, contains, createImage, createImage, createVolatileImage, createVolatileImage, disable, dispatchEvent, enable, enable, enableInputMethods, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, getBackground, getBounds, getBounds, getColorModel, getComponentListeners, getComponentOrientation, getCursor, getDropTarget, getFocusListeners, getFocusTraversalKeysEnabled, getFont, getFontMetrics, getForeground, getGraphics, getHeight, getHierarchyBoundsListeners, getHierarchyListeners, getIgnoreRepaint, getInputMethodListeners, getInputMethodRequests, getKeyListeners, getLocation, getLocation, getLocationOnScreen, getMouseListeners, getMouseMotionListeners, getMousePosition, getMouseWheelListeners, getName, getParent, getPeer, getPropertyChangeListeners, getPropertyChangeListeners, getSize, getSize, getTreeLock, getWidth, getX, getY, gotFocus, handleEvent, hasFocus, imageUpdate, inside, isBackgroundSet, isCursorSet, isDisplayable, isDoubleBuffered, isEnabled, isFocusable, isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet, isLightweight, isMaximumSizeSet, isMinimumSizeSet, isOpaque, isPreferredSizeSet, isValid, isVisible, keyDown, keyUp, list, list, list, location, lostFocus, mouseDown, mouseDrag, mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll, prepareImage, prepareImage, printAll, remove, removeComponentListener, removeFocusListener, removeHierarchyBoundsListener, removeHierarchyListener, removeInputMethodListener, removeKeyListener, removeMouseListener, removeMouseMotionListener, removeMouseWheelListener, removePropertyChangeListener, removePropertyChangeListener, repaint, repaint, repaint, repaint, requestFocus, requestFocusInWindow, reshape, resize, resize, setBackground, setBounds, setComponentOrientation, setDropTarget, setEnabled, setFocusable, setFocusTraversalKeysEnabled, setForeground, setIgnoreRepaint, setLocale, setLocation, setLocation, setMaximumSize, setMinimumSize, setName, setPreferredSize, setSize, setSize, setVisible, show, size, toString, transferFocus, transferFocusUpCycle

Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, wait, wait, wait

Constructor Detail

GizmoConnectionsDialog

```
public GizmoConnectionsDialog(Gizmo gizmo)
```

Creates a GizmoConnectionsDialog for the gizmo.

Parameters:

`gizmo` - The Gizmo whose connections are being edited.

Method Detail

keyGrabbed

```
public void keyGrabbed(KeyGrabberDialog dialog,
                       int keyCode)
```

Passes a key back to the Dialog, and closes the KeyGrabber

Parameters:

`dialog` - The origin of the Keycode being returned
`keyCode` - The keycode to be using

---

gizmoball.ui

Class GizmoFileFilter

```
java.lang.Object
  └ javax.swing.filechooser.FileFilter
      └ gizmoball.ui.GizmoFileFilter
```

public class **GizmoFileFilter**extends javax.swing.filechooser.FileFilter

Chooses

Author:

Clayton Sims

Constructor Summary

GizmoFileFilter()	

Method Summary

boolean	**accept**(java.io.File f) Whether or not to accept the file
java.lang.String	**getDescription**()
static java.lang.String	**getExtension**(java.io.File f)
void	**setFilterBoard**() Sets the filter to filter for GizmoBoard files
void	**setFilterTheme**() Sets the filter to filter for GizmoTheme files

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

GizmoFileFilter

public **GizmoFileFilter**()

Method Detail

accept

public boolean **accept**(java.io.File f)

Whether or not to accept the file

Specified by:
accept in class javax.swing.filechooser.FileFilter

---

getDescription

public java.lang.String **getDescription**()

Specified by:
getDescription in class javax.swing.filechooser.FileFilter

---

getExtension

public static java.lang.String **getExtension**(java.io.File f)

---

setFilterTheme

public void **setFilterTheme**()

Sets the filter to filter for GizmoTheme files

---

setFilterBoard

```
public void setFilterBoard()
```

Sets the filter to filter for GizmoBoard files

---

gizmoball.ui

Class GizmoImageLibrary

```
java.lang.Object
  └ gizmoball.ui.GizmoImageLibrary
```

```
public class GizmoImageLibraryextends java.lang.Object
```

A singleton class used to store and retrieve all images associated with gizmoball, as well as loading themes

Author:

Clayton Sims

Field Summary

static GizmoImageLibrary	**INSTANCE**

Method Summary

void	**addMap**(java.lang.String keyName, java.util.ArrayList<java.awt.Image> keyImages) Adds a set of images to the images associated with a given gizmo
void	**CreateThemeFromFile**(java.lang.String filename) Creates the images associated with each Gizmo in a Theme
static java.lang.String	**getDirectoryOfFile**(java.lang.String filename)
java.util.ArrayList<java.awt.Image>	**getImageArray**(java.lang.String gizmoName) Gets an array of images from the current theme associated with the given gizmo

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Field Detail

INSTANCE

```
public static final GizmoImageLibrary INSTANCE
```

Method Detail

CreateThemeFromFile

```
public void CreateThemeFromFile(java.lang.String filename)
```

Creates the images associated with each Gizmo in a Theme

Parameters:
`filename` - The filename of the theme to load

---

getImageArray

```
public java.util.ArrayList<java.awt.Image> getImageArray(java.lang.String gizmoName)
```

Gets an array of images from the current theme associated with the given gizmo

Parameters:
`gizmoName` - The name of the gizmo that images are to be returned for
Returns:
Image[] of images representing the gizmo

---

addMap

```
public void addMap(java.lang.String keyName,
                   java.util.ArrayList<java.awt.Image> keyImages)
```

Adds a set of images to the images associated with a given gizmo

Parameters:
`keyName` - The name of the gizmo or key to associate the images with
`keyImages` - The images

getDirectoryOfFile

```
public static java.lang.String getDirectoryOfFile(java.lang.String filename)
```

gizmoball.ui
Class GizmoPropertyEditor

```
java.lang.Object
  └ java.awt.Component
      └ java.awt.Container
          └ java.awt.Window
              └ java.awt.Dialog
                  └ javax.swing.JDialog
                      └ gizmoball.ui.GizmoPropertyEditor
```

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.Accessible, javax.swing.RootPaneContainer, javax.swing.WindowConstants

---

```
public class GizmoPropertyEditorextends javax.swing.JDialog
```

The GizmoPropertyEditor is responsible for editing the properties that its represented gizmo reports. **RI:** myGizmo != null, myLevel != null

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

See Also:

Serialized Form

Field Summary

Fields inherited from class java.awt.Component
BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT, TOP_ALIGNMENT

Fields inherited from interface javax.swing.WindowConstants
DISPOSE_ON_CLOSE, DO_NOTHING_ON_CLOSE, EXIT_ON_CLOSE, HIDE_ON_CLOSE

Fields inherited from interface java.awt.image.ImageObserver
ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH

Constructor Summary

GizmoPropertyEditor(Gizmo gizmo, Level level) Creates a new GizmoPropertyEditor.	

Method Summary

boolean	**saveGizmoProperties**() Attempts to push the new gizmo properties onto the gizmo.

Methods inherited from class javax.swing.JDialog
getAccessibleContext, getContentPane, getDefaultCloseOperation, getGlassPane, getJMenuBar, getLayeredPane, getRootPane, isDefaultLookAndFeelDecorated, remove, setContentPane, setDefaultCloseOperation, setDefaultLookAndFeelDecorated, setGlassPane, setJMenuBar, setLayeredPane, setLayout, update

Methods inherited from class java.awt.Dialog
addNotify, getTitle, hide, isModal, isResizable, isUndecorated, setModal, setResizable, setTitle, setUndecorated, show

Methods inherited from class java.awt.Window

addPropertyChangeListener, addPropertyChangeListener, addWindowFocusListener, addWindowListener, addWindowStateListener, applyResourceBundle, applyResourceBundle, createBufferStrategy, createBufferStrategy, dispose, getBufferStrategy, getFocusableWindowState, getFocusCycleRootAncestor, getFocusOwner, getFocusTraversalKeys, getGraphicsConfiguration, getInputContext, getListeners, getLocale, getMostRecentFocusOwner, getOwnedWindows, getOwner, getToolkit, getWarningString, getWindowFocusListeners, getWindowListeners, getWindowStateListeners, isActive, isAlwaysOnTop, isFocusableWindow, isFocusCycleRoot, isFocused, isLocationByPlatform, isShowing, pack, postEvent, removeWindowFocusListener, removeWindowListener, removeWindowStateListener, setAlwaysOnTop, setBounds, setCursor, setFocusableWindowState, setFocusCycleRoot, setLocationByPlatform, setLocationRelativeTo, toBack, toFront

Methods inherited from class java.awt.Container

add, add, add, add, add, addContainerListener, applyComponentOrientation, areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt, findComponentAt, getAlignmentX, getAlignmentY, getComponent, getComponentAt, getComponentAt, getComponentCount, getComponents, getComponentZOrder, getContainerListeners, getFocusTraversalPolicy, getInsets, getLayout, getMaximumSize, getMinimumSize, getMousePosition, getPreferredSize, insets, invalidate, isAncestorOf, isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout, list, list, locate, minimumSize, paint, paintComponents, preferredSize, print, printComponents, remove, removeAll, removeContainerListener, removeNotify, setComponentZOrder, setFocusTraversalKeys, setFocusTraversalPolicy, setFocusTraversalPolicyProvider, setFont, transferFocusBackward, transferFocusDownCycle, validate

Methods inherited from class java.awt.Component

action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener, addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener, addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage, contains, contains, createImage, createImage, createVolatileImage, createVolatileImage, disable, dispatchEvent, enable, enable, enableInputMethods, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, getBackground, getBounds, getBounds, getColorModel, getComponentListeners, getComponentOrientation, getCursor, getDropTarget, getFocusListeners, getFocusTraversalKeysEnabled, getFont, getFontMetrics, getForeground, getGraphics, getHeight, getHierarchyBoundsListeners, getHierarchyListeners, getIgnoreRepaint, getInputMethodListeners, getInputMethodRequests, getKeyListeners, getLocation, getLocation, getLocationOnScreen, getMouseListeners, getMouseMotionListeners, getMousePosition, getMouseWheelListeners, getName, getParent, getPeer, getPropertyChangeListeners, getPropertyChangeListeners, getSize, getSize, getTreeLock, getWidth, getX, getY, gotFocus, handleEvent, hasFocus, imageUpdate, inside, isBackgroundSet, isCursorSet, isDisplayable, isDoubleBuffered, isEnabled, isFocusable, isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet, isLightweight, isMaximumSizeSet, isMinimumSizeSet, isOpaque, isPreferredSizeSet, isValid, isVisible, keyDown, keyUp, list, list, list, location, lostFocus, mouseDown, mouseDrag, mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll, prepareImage, prepareImage, printAll, remove, removeComponentListener, removeFocusListener, removeHierarchyBoundsListener, removeHierarchyListener, removeInputMethodListener, removeKeyListener, removeMouseListener, removeMouseMotionListener, removeMouseWheelListener, removePropertyChangeListener, removePropertyChangeListener, repaint, repaint, repaint, repaint, requestFocus, requestFocusInWindow, reshape, resize, resize, setBackground, setBounds, setComponentOrientation, setDropTarget, setEnabled, setFocusable, setFocusTraversalKeysEnabled, setForeground, setIgnoreRepaint, setLocale, setLocation, setLocation, setMaximumSize, setMinimumSize, setName, setPreferredSize, setSize, setSize, setVisible, show, size, toString, transferFocus, transferFocusUpCycle

Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, wait, wait, wait

Constructor Detail

GizmoPropertyEditor

```
public GizmoPropertyEditor(Gizmo gizmo,
                           Level level)
```

Creates a new GizmoPropertyEditor. Loads in gizmo, and level, and creates the appropriate swing controls to modify their properties.

Parameters:

`gizmo` - The Gizmo being edited
`level` - the Level containing the gizmo

Method Detail

saveGizmoProperties

```
public boolean saveGizmoProperties()
```

Attempts to push the new gizmo properties onto the gizmo. Checks to ensure that the changes are valid.

Returns:

true if the changes are valid, false if the changes are invalid

---

gizmoball.ui
Class GizmoStatusPanel

```
java.lang.Object
  └ java.awt.Component
      └ java.awt.Container
          └ javax.swing.JComponent
              └ javax.swing.JPanel
                  └ gizmoball.ui.GizmoStatusPanel
```

All Implemented Interfaces:
java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.Accessible

---

```
public class GizmoStatusPanelextends javax.swing.JPanel
```

This Panel displays information about the current game of GizmoBall

Author:
David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims
See Also:
Serialized Form

Nested Class Summary

Nested classes/interfaces inherited from class javax.swing.JComponent
javax.swing.JComponent.AccessibleJComponent

Field Summary

static long	**serialVersionUID**

Fields inherited from class javax.swing.JComponent
TOOL_TIP_TEXT_KEY, UNDEFINED_CONDITION, WHEN_ANCESTOR_OF_FOCUSED_COMPONENT, WHEN_FOCUSED, WHEN_IN_FOCUSED_WINDOW

Fields inherited from class java.awt.Component
BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT, TOP_ALIGNMENT

Fields inherited from interface java.awt.image.ImageObserver
ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH

Constructor Summary

GizmoStatusPanel() Creates a new GizmoStatusPanel.	

Method Summary

void	**setLevelName**(java.lang.String LevelName) Shows the name of the current level
void	**setLevelNumber**(int LevelNumber) Sets the current Level Number
void	**setScore**(int Score) Sets the current Player's score

Methods inherited from class javax.swing.JPanel
getAccessibleContext, getUI, getUIClassID, setUI, updateUI

Methods inherited from class javax.swing.JComponent

addAncestorListener, addNotify, addVetoableChangeListener, computeVisibleRect, contains, createToolTip, disable, enable, firePropertyChange, firePropertyChange, firePropertyChange, getActionForKeyStroke, getActionMap, getAlignmentX, getAlignmentY, getAncestorListeners, getAutoscrolls, getBorder, getBounds, getClientProperty, getComponentPopupMenu, getConditionForKeyStroke, getDebugGraphicsOptions, getDefaultLocale, getFontMetrics, getGraphics, getHeight, getInheritsPopupMenu, getInputMap, getInputMap, getInputVerifier, getInsets, getInsets, getListeners, getLocation, getMaximumSize, getMinimumSize, getNextFocusableComponent, getPopupLocation, getPreferredSize, getRegisteredKeyStrokes, getRootPane, getSize, getToolTipLocation, getToolTipText, getToolTipText, getTopLevelAncestor, getTransferHandler, getVerifyInputWhenFocusTarget, getVetoableChangeListeners, getVisibleRect, getWidth, getX, getY, grabFocus, isDoubleBuffered, isLightweightComponent, isManagingFocus, isOpaque, isOptimizedDrawingEnabled, isPaintingTile, isRequestFocusEnabled, isValidateRoot, paint, paintImmediately, paintImmediately, print, printAll, putClientProperty, registerKeyboardAction, registerKeyboardAction, removeAncestorListener, removeNotify, removeVetoableChangeListener, repaint, repaint, requestDefaultFocus, requestFocus, requestFocus, requestFocusInWindow, resetKeyboardActions, reshape, revalidate, scrollRectToVisible, setActionMap, setAlignmentX, setAlignmentY, setAutoscrolls, setBackground, setBorder, setComponentPopupMenu, setDebugGraphicsOptions, setDefaultLocale, setDoubleBuffered, setEnabled, setFocusTraversalKeys, setFont, setForeground, setInheritsPopupMenu, setInputMap, setInputVerifier, setMaximumSize, setMinimumSize, setNextFocusableComponent, setOpaque, setPreferredSize, setRequestFocusEnabled, setToolTipText, setTransferHandler, setVerifyInputWhenFocusTarget, setVisible, unregisterKeyboardAction, update

Methods inherited from class java.awt.Container
add, add, add, add, add, addContainerListener, addPropertyChangeListener, addPropertyChangeListener, applyComponentOrientation, areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt, findComponentAt, getComponent, getComponentAt, getComponentAt, getComponentCount, getComponents, getComponentZOrder, getContainerListeners, getFocusTraversalKeys, getFocusTraversalPolicy, getLayout, getMousePosition, insets, invalidate, isAncestorOf, isFocusCycleRoot, isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout, list, list, locate, minimumSize, paintComponents, preferredSize, printComponents, remove, remove, removeAll, removeContainerListener, setComponentZOrder, setFocusCycleRoot, setFocusTraversalPolicy, setFocusTraversalPolicyProvider, setLayout, transferFocusBackward, transferFocusDownCycle, validate

Methods inherited from class java.awt.Component
action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener, addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener, addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage, contains, createImage, createImage, createVolatileImage, createVolatileImage, dispatchEvent, enable, enableInputMethods, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, getBackground, getBounds, getColorModel, getComponentListeners, getComponentOrientation, getCursor, getDropTarget, getFocusCycleRootAncestor, getFocusListeners, getFocusTraversalKeysEnabled, getFont, getForeground, getGraphicsConfiguration, getHierarchyBoundsListeners, getHierarchyListeners, getIgnoreRepaint, getInputContext, getInputMethodListeners, getInputMethodRequests, getKeyListeners, getLocale, getLocation, getLocationOnScreen, getMouseListeners, getMouseMotionListeners, getMousePosition, getMouseWheelListeners, getName, getParent, getPeer, getPropertyChangeListeners, getPropertyChangeListeners, getSize, getToolkit, getTreeLock, gotFocus, handleEvent, hasFocus, hide, imageUpdate, inside, isBackgroundSet, isCursorSet, isDisplayable, isEnabled, isFocusable, isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet, isLightweight, isMaximumSizeSet, isMinimumSizeSet, isPreferredSizeSet, isShowing, isValid, isVisible, keyDown, keyUp, list, list, list, location, lostFocus, mouseDown, mouseDrag, mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll, postEvent, prepareImage, prepareImage, remove, removeComponentListener, removeFocusListener, removeHierarchyBoundsListener, removeHierarchyListener, removeInputMethodListener, removeKeyListener, removeMouseListener, removeMouseMotionListener, removeMouseWheelListener, removePropertyChangeListener, removePropertyChangeListener, repaint, repaint, repaint, resize, resize, setBounds, setBounds, setComponentOrientation, setCursor, setDropTarget, setFocusable, setFocusTraversalKeysEnabled, setIgnoreRepaint, setLocale, setLocation, setLocation, setName, setSize, setSize, show, show, size, toString, transferFocus, transferFocusUpCycle

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, wait, wait, wait

Field Detail

serialVersionUID

```
public static final long serialVersionUID
```

See Also:
Constant Field Values

Constructor Detail

GizmoStatusPanel

```
public GizmoStatusPanel()
```

Creates a new GizmoStatusPanel.

Method Detail

setLevelNumber

```
public void setLevelNumber(int LevelNumber)
```

Sets the current Level Number

Parameters:
`LevelNumber` - the number

---

setLevelName

```
public void setLevelName(java.lang.String LevelName)
```

Shows the name of the current level

Parameters:
`LevelName` - the name of the level

---

setScore

```
public void setScore(int Score)
```

Sets the current Player's score

Parameters:

`Score` - the score of the current player

---

gizmoball.ui

Class GizmoToolbox

```
java.lang.Object
  └ java.awt.Component
      └ java.awt.Container
          └ javax.swing.JComponent
              └ javax.swing.JPanel
                  └ gizmoball.ui.GizmoToolbox
```

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.Accessible

---

```
public class GizmoToolboxextends javax.swing.JPanel
```

This class is responsible for giving the user a toolbox full of gizmos to use in Design Mode

Author:

Clayton Sims

See Also:

Serialized Form

Nested Class Summary

Nested classes/interfaces inherited from class javax.swing.JComponent
javax.swing.JComponent.AccessibleJComponent

Field Summary

Fields inherited from class javax.swing.JComponent
TOOL_TIP_TEXT_KEY, UNDEFINED_CONDITION, WHEN_ANCESTOR_OF_FOCUSED_COMPONENT, WHEN_FOCUSED, WHEN_IN_FOCUSED_WINDOW

Fields inherited from class java.awt.Component
BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT, TOP_ALIGNMENT

Fields inherited from interface java.awt.image.ImageObserver
ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH

Constructor Summary

GizmoToolbox()	

Method Summary

Methods inherited from class javax.swing.JPanel
getAccessibleContext, getUI, getUIClassID, setUI, updateUI

Methods inherited from class javax.swing.JComponent

addAncestorListener, addNotify, addVetoableChangeListener, computeVisibleRect, contains, createToolTip, disable, enable, firePropertyChange, firePropertyChange, firePropertyChange, getActionForKeyStroke, getActionMap, getAlignmentX, getAlignmentY, getAncestorListeners, getAutoscrolls, getBorder, getBounds, getClientProperty, getComponentPopupMenu, getConditionForKeyStroke, getDebugGraphicsOptions, getDefaultLocale, getFontMetrics, getGraphics, getHeight, getInheritsPopupMenu, getInputMap, getInputMap, getInputVerifier, getInsets, getInsets, getListeners, getLocation, getMaximumSize, getMinimumSize, getNextFocusableComponent, getPopupLocation, getPreferredSize, getRegisteredKeyStrokes, getRootPane, getSize, getToolTipLocation, getToolTipText, getToolTipText, getTopLevelAncestor, getTransferHandler, getVerifyInputWhenFocusTarget, getVetoableChangeListeners, getVisibleRect, getWidth, getX, getY, grabFocus, isDoubleBuffered, isLightweightComponent, isManagingFocus, isOpaque, isOptimizedDrawingEnabled, isPaintingTile, isRequestFocusEnabled, isValidateRoot, paint, paintImmediately, paintImmediately, print, printAll, putClientProperty, registerKeyboardAction, registerKeyboardAction, removeAncestorListener, removeNotify, removeVetoableChangeListener, repaint, repaint, requestDefaultFocus, requestFocus, requestFocus, requestFocusInWindow, resetKeyboardActions, reshape, revalidate, scrollRectToVisible, setActionMap, setAlignmentX, setAlignmentY, setAutoscrolls, setBackground, setBorder, setComponentPopupMenu, setDebugGraphicsOptions, setDefaultLocale, setDoubleBuffered, setEnabled, setFocusTraversalKeys, setFont, setForeground, setInheritsPopupMenu, setInputMap, setInputVerifier, setMaximumSize, setMinimumSize, setNextFocusableComponent, setOpaque, setPreferredSize, setRequestFocusEnabled, setToolTipText, setTransferHandler, setVerifyInputWhenFocusTarget, setVisible, unregisterKeyboardAction, update

Methods inherited from class java.awt.Container
add, add, add, add, add, addContainerListener, addPropertyChangeListener, addPropertyChangeListener, applyComponentOrientation, areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt, findComponentAt, getComponent, getComponentAt, getComponentAt, getComponentCount, getComponents, getComponentZOrder, getContainerListeners, getFocusTraversalKeys, getFocusTraversalPolicy, getLayout, getMousePosition, insets, invalidate, isAncestorOf, isFocusCycleRoot, isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout, list, list, locate, minimumSize, paintComponents, preferredSize, printComponents, remove, remove, removeAll, removeContainerListener, setComponentZOrder, setFocusCycleRoot, setFocusTraversalPolicy, setFocusTraversalPolicyProvider, setLayout, transferFocusBackward, transferFocusDownCycle, validate

Methods inherited from class java.awt.Component
action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener, addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener, addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage, contains, createImage, createImage, createVolatileImage, createVolatileImage, dispatchEvent, enable, enableInputMethods, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, getBackground, getBounds, getColorModel, getComponentListeners, getComponentOrientation, getCursor, getDropTarget, getFocusCycleRootAncestor, getFocusListeners, getFocusTraversalKeysEnabled, getFont, getForeground, getGraphicsConfiguration, getHierarchyBoundsListeners, getHierarchyListeners, getIgnoreRepaint, getInputContext, getInputMethodListeners, getInputMethodRequests, getKeyListeners, getLocale, getLocation, getLocationOnScreen, getMouseListeners, getMouseMotionListeners, getMousePosition, getMouseWheelListeners, getName, getParent, getPeer, getPropertyChangeListeners, getPropertyChangeListeners, getSize, getToolkit, getTreeLock, gotFocus, handleEvent, hasFocus, hide, imageUpdate, inside, isBackgroundSet, isCursorSet, isDisplayable, isEnabled, isFocusable, isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet, isLightweight, isMaximumSizeSet, isMinimumSizeSet, isPreferredSizeSet, isShowing, isValid, isVisible, keyDown, keyUp, list, list, list, location, lostFocus, mouseDown, mouseDrag, mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll, postEvent, prepareImage, prepareImage, remove, removeComponentListener, removeFocusListener, removeHierarchyBoundsListener, removeHierarchyListener, removeInputMethodListener, removeKeyListener, removeMouseListener, removeMouseMotionListener, removeMouseWheelListener, removePropertyChangeListener, removePropertyChangeListener, repaint, repaint, repaint, resize, resize, setBounds, setBounds, setComponentOrientation, setCursor, setDropTarget, setFocusable, setFocusTraversalKeysEnabled, setIgnoreRepaint, setLocale, setLocation, setLocation, setName, setSize, setSize, show, show, size, toString, transferFocus, transferFocusUpCycle

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, wait, wait, wait

Constructor Detail

GizmoToolbox

```
public GizmoToolbox()
```

---

gizmoball.ui

Class GizmoWindow

```
java.lang.Object
  └ java.awt.Component
      └ java.awt.Container
          └ java.awt.Window
              └ java.awt.Frame
                  └ javax.swing.JFrame
                      └ gizmoball.ui.GizmoWindow
```

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.Accessible, javax.swing.RootPaneContainer, javax.swing.WindowConstants

---

```
public class GizmoWindowextends javax.swing.JFrame
```

The Main UI framework window for Gizmoball. **RI:** if(isDragging) dragOffset must be valid, gizmoBoard.containsMouseMotionListener(dragListener) must be true.
if(gameEditMode()) leftPanel.contains(editPanel) else leftPanel.contains(statusPanel)
if(inGizmoConnectionMode) editGG.selected() == true
if(inEditMode()) gameMusic.enabled() == false, currentSong == null
if(providedMusic != currentMusic) currentSong == null
if(gameMusic.enabled()) musicAvailible == true
if(editItem.isEnabled()) selectedGizmo() != null || selectedBall() != null
if(deleteItem.isEnabled()) selectedGizmo() != null || selectedBall() != null
if(editKC.isEnabled()) selectedGizmo() != null
if(editGG.isEnabled()) selectedGizmo() != null

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

See Also:

Serialized Form

Field Summary

static long	**serialVersionUID**

Fields inherited from class javax.swing.JFrame
EXIT_ON_CLOSE

Fields inherited from class java.awt.Frame
CROSSHAIR_CURSOR, DEFAULT_CURSOR, E_RESIZE_CURSOR, HAND_CURSOR, ICONIFIED, MAXIMIZED_BOTH, MAXIMIZED_HORIZ, MAXIMIZED_VERT, MOVE_CURSOR, N_RESIZE_CURSOR, NE_RESIZE_CURSOR, NORMAL, NW_RESIZE_CURSOR, S_RESIZE_CURSOR, SE_RESIZE_CURSOR, SW_RESIZE_CURSOR, TEXT_CURSOR, W_RESIZE_CURSOR, WAIT_CURSOR

Fields inherited from class java.awt.Component
BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT, TOP_ALIGNMENT

Fields inherited from interface javax.swing.WindowConstants
DISPOSE_ON_CLOSE, DO_NOTHING_ON_CLOSE, HIDE_ON_CLOSE

Fields inherited from interface java.awt.image.ImageObserver
ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH

Constructor Summary

GizmoWindow() Creates a new GizmoWindow.	

Method Summary

boolean	**inEditMode**() Is the Window in Edit Mode
boolean	**inGizmoConnectionMode**() Tells whether edit mode is in Gizmo->GizmoConnection Mode
boolean	**isPaused**() Tells whether the game is paused.
void	**loadDefaultLevel**() Loads the level defined by DEFAULT_LEVEL
void	**loadLevel**(java.lang.String filename, boolean internal) Loads a level specified by the filename
static void	**main**(java.lang.String[] args)
void	**switchToEditMode**() Switches into Building Mode
void	**switchToGameMode**() Switches into Gameplay mode.
void	**updateTimerEvent**() Updates the current game's timer with the length of a timer click.

Methods inherited from class javax.swing.JFrame

getAccessibleContext, getContentPane, getDefaultCloseOperation, getGlassPane, getJMenuBar, getLayeredPane, getRootPane, isDefaultLookAndFeelDecorated, remove, setContentPane, setDefaultCloseOperation, setDefaultLookAndFeelDecorated, setGlassPane, setIconImage, setJMenuBar, setLayeredPane, setLayout, update

Methods inherited from class java.awt.Frame

addNotify, getCursorType, getExtendedState, getFrames, getIconImage, getMaximizedBounds, getMenuBar, getState, getTitle, isResizable, isUndecorated, remove, removeNotify, setCursor, setExtendedState, setMaximizedBounds, setMenuBar, setResizable, setState, setTitle, setUndecorated

Methods inherited from class java.awt.Window

addPropertyChangeListener, addPropertyChangeListener, addWindowFocusListener, addWindowListener, addWindowStateListener, applyResourceBundle, applyResourceBundle, createBufferStrategy, createBufferStrategy, dispose, getBufferStrategy, getFocusableWindowState, getFocusCycleRootAncestor, getFocusOwner, getFocusTraversalKeys, getGraphicsConfiguration, getInputContext, getListeners, getLocale, getMostRecentFocusOwner, getOwnedWindows, getOwner, getToolkit, getWarningString, getWindowFocusListeners, getWindowListeners, getWindowStateListeners, hide, isActive, isAlwaysOnTop, isFocusableWindow, isFocusCycleRoot, isFocused, isLocationByPlatform, isShowing, pack, postEvent, removeWindowFocusListener, removeWindowListener, removeWindowStateListener, setAlwaysOnTop, setBounds, setCursor, setFocusableWindowState, setFocusCycleRoot, setLocationByPlatform, setLocationRelativeTo, show, toBack, toFront

Methods inherited from class java.awt.Container

add, add, add, add, add, addContainerListener, applyComponentOrientation, areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt, findComponentAt, getAlignmentX, getAlignmentY, getComponent, getComponentAt, getComponentAt, getComponentCount, getComponents, getComponentZOrder, getContainerListeners, getFocusTraversalPolicy, getInsets, getLayout, getMaximumSize, getMinimumSize, getMousePosition, getPreferredSize, insets, invalidate, isAncestorOf, isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout, list, list, locate, minimumSize, paint, paintComponents, preferredSize, print, printComponents, remove, removeAll, removeContainerListener, setComponentZOrder, setFocusTraversalKeys, setFocusTraversalPolicy, setFocusTraversalPolicyProvider, setFont, transferFocusBackward, transferFocusDownCycle, validate

Methods inherited from class java.awt.Component

action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener, addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener, addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage, contains, contains, createImage, createImage, createVolatileImage, createVolatileImage, disable, dispatchEvent, enable, enable, enableInputMethods, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, getBackground, getBounds, getBounds, getColorModel, getComponentListeners, getComponentOrientation, getCursor, getDropTarget, getFocusListeners, getFocusTraversalKeysEnabled, getFont, getFontMetrics, getForeground, getGraphics, getHeight, getHierarchyBoundsListeners, getHierarchyListeners, getIgnoreRepaint, getInputMethodListeners, getInputMethodRequests, getKeyListeners, getLocation, getLocation, getLocationOnScreen, getMouseListeners, getMouseMotionListeners, getMousePosition, getMouseWheelListeners, getName, getParent, getPeer, getPropertyChangeListeners, getPropertyChangeListeners, getSize, getSize, getTreeLock, getWidth, getX, getY, gotFocus, handleEvent, hasFocus, imageUpdate, inside, isBackgroundSet, isCursorSet, isDisplayable, isDoubleBuffered, isEnabled, isFocusable, isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet, isLightweight, isMaximumSizeSet, isMinimumSizeSet, isOpaque, isPreferredSizeSet, isValid, isVisible, keyDown, keyUp, list, list, list, location, lostFocus, mouseDown, mouseDrag, mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll, prepareImage, prepareImage, printAll, removeComponentListener, removeFocusListener, removeHierarchyBoundsListener, removeHierarchyListener, removeInputMethodListener, removeKeyListener, removeMouseListener, removeMouseMotionListener, removeMouseWheelListener, removePropertyChangeListener, removePropertyChangeListener, repaint, repaint, repaint, repaint, requestFocus, requestFocusInWindow, reshape, resize, resize, setBackground, setBounds, setComponentOrientation, setDropTarget, setEnabled, setFocusable, setFocusTraversalKeysEnabled, setForeground, setIgnoreRepaint, setLocale, setLocation, setLocation, setMaximumSize, setMinimumSize, setName, setPreferredSize, setSize, setSize, setVisible, show, size, toString, transferFocus, transferFocusUpCycle

Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, wait, wait, wait

Methods inherited from interface java.awt.MenuContainer
getFont, postEvent

Field Detail

serialVersionUID

```
public static final long serialVersionUID
```

See Also:
Constant Field Values

Constructor Detail

GizmoWindow

```
public GizmoWindow()
```

Creates a new GizmoWindow. Loads the default level, sets up Menus and the Edit Panel, sets up the board's mouse handlers, and starts the game.

Method Detail

main

```
public static void main(java.lang.String[] args)
```

---

inEditMode

```
public boolean inEditMode()
```

Is the Window in Edit Mode

Returns:
gameEditMode.isSelected()

---

inGizmoConnectionMode

```
public boolean inGizmoConnectionMode()
```

Tells whether edit mode is in Gizmo->GizmoConnection Mode

Returns:
true if in gizmo connection mode false otherwise

---

switchToGameMode

```
public void switchToGameMode()
```

Switches into Gameplay mode.

Effects:
gizmoBoard.setGameMode, Resets the current Game, Deselects any selected Gizmo.

---

switchToEditMode

```
public void switchToEditMode()
```

Switches into Building Mode

Effects:
Resets current Game, deselects any selected gizmo and ball, repaints the gizmoBoard.

---

loadLevel

```
public void loadLevel(java.lang.String filename,
                      boolean internal)
```

Loads a level specified by the filename

Parameters:
`filename` -
`internal` - Whether or not the filename is internal (Based on the file system of GizmoBall) or not(Based on a universal path)
Effects:
currentLevel = new Loaded Level

---

loadDefaultLevel

```
public void loadDefaultLevel()
```

Loads the level defined by DEFAULT_LEVEL

---

isPaused

```
public boolean isPaused()
```

Tells whether the game is paused.

Returns:
where or not the game is paused

---

updateTimerEvent

```
public void updateTimerEvent()
```

Updates the current game's timer with the length of a timer click.

---

gizmoball.ui

Class KeyGrabberDialog

```
java.lang.Object
  └ java.awt.Component
      └ java.awt.Container
          └ java.awt.Window
              └ java.awt.Dialog
                  └ javax.swing.JDialog
                      └ gizmoball.ui.KeyGrabberDialog
```

All Implemented Interfaces:

java.awt.event.KeyListener, java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, java.util.EventListener, javax.accessibility.Accessible, javax.swing.RootPaneContainer, javax.swing.WindowConstants

---

```
public class KeyGrabberDialogextends javax.swing.JDialogimplements java.awt.event.KeyListener
```

Displays, waits for key input, then relays the input back to its parent class.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims *

See Also:

Serialized Form

Field Summary

Fields inherited from class java.awt.Component
BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT, TOP_ALIGNMENT

Fields inherited from interface javax.swing.WindowConstants
DISPOSE_ON_CLOSE, DO_NOTHING_ON_CLOSE, EXIT_ON_CLOSE, HIDE_ON_CLOSE

Fields inherited from interface java.awt.image.ImageObserver
ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH

Constructor Summary

KeyGrabberDialog(GizmoConnectionsDialog Owner) Creates a KeyGrabberDialog with the parent Owner.	

Method Summary

void	**keyPressed**(java.awt.event.KeyEvent e) Handles keyPress events
void	**keyReleased**(java.awt.event.KeyEvent e) Handles keyRelease events
void	**keyTyped**(java.awt.event.KeyEvent e) Handles keyType events

Methods inherited from class javax.swing.JDialog
getAccessibleContext, getContentPane, getDefaultCloseOperation, getGlassPane, getJMenuBar, getLayeredPane, getRootPane, isDefaultLookAndFeelDecorated, remove, setContentPane, setDefaultCloseOperation, setDefaultLookAndFeelDecorated, setGlassPane, setJMenuBar, setLayeredPane, setLayout, update

Methods inherited from class java.awt.Dialog
addNotify, getTitle, hide, isModal, isResizable, isUndecorated, setModal, setResizable, setTitle, setUndecorated, show

Methods inherited from class java.awt.Window

addPropertyChangeListener, addPropertyChangeListener, addWindowFocusListener, addWindowListener, addWindowStateListener, applyResourceBundle, applyResourceBundle, createBufferStrategy, createBufferStrategy, dispose, getBufferStrategy, getFocusableWindowState, getFocusCycleRootAncestor, getFocusOwner, getFocusTraversalKeys, getGraphicsConfiguration, getInputContext, getListeners, getLocale, getMostRecentFocusOwner, getOwnedWindows, getOwner, getToolkit, getWarningString, getWindowFocusListeners, getWindowListeners, getWindowStateListeners, isActive, isAlwaysOnTop, isFocusableWindow, isFocusCycleRoot, isFocused, isLocationByPlatform, isShowing, pack, postEvent, removeWindowFocusListener, removeWindowListener, removeWindowStateListener, setAlwaysOnTop, setBounds, setCursor, setFocusableWindowState, setFocusCycleRoot, setLocationByPlatform, setLocationRelativeTo, toBack, toFront

Methods inherited from class java.awt.Container

add, add, add, add, add, addContainerListener, applyComponentOrientation, areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt, findComponentAt, getAlignmentX, getAlignmentY, getComponent, getComponentAt, getComponentAt, getComponentCount, getComponents, getComponentZOrder, getContainerListeners, getFocusTraversalPolicy, getInsets, getLayout, getMaximumSize, getMinimumSize, getMousePosition, getPreferredSize, insets, invalidate, isAncestorOf, isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout, list, list, locate, minimumSize, paint, paintComponents, preferredSize, print, printComponents, remove, removeAll, removeContainerListener, removeNotify, setComponentZOrder, setFocusTraversalKeys, setFocusTraversalPolicy, setFocusTraversalPolicyProvider, setFont, transferFocusBackward, transferFocusDownCycle, validate

Methods inherited from class java.awt.Component

action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener, addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener, addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage, contains, contains, createImage, createImage, createVolatileImage, createVolatileImage, disable, dispatchEvent, enable, enable, enableInputMethods, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, getBackground, getBounds, getBounds, getColorModel, getComponentListeners, getComponentOrientation, getCursor, getDropTarget, getFocusListeners, getFocusTraversalKeysEnabled, getFont, getFontMetrics, getForeground, getGraphics, getHeight, getHierarchyBoundsListeners, getHierarchyListeners, getIgnoreRepaint, getInputMethodListeners, getInputMethodRequests, getKeyListeners, getLocation, getLocation, getLocationOnScreen, getMouseListeners, getMouseMotionListeners, getMousePosition, getMouseWheelListeners, getName, getParent, getPeer, getPropertyChangeListeners, getPropertyChangeListeners, getSize, getSize, getTreeLock, getWidth, getX, getY, gotFocus, handleEvent, hasFocus, imageUpdate, inside, isBackgroundSet, isCursorSet, isDisplayable, isDoubleBuffered, isEnabled, isFocusable, isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet, isLightweight, isMaximumSizeSet, isMinimumSizeSet, isOpaque, isPreferredSizeSet, isValid, isVisible, keyDown, keyUp, list, list, list, location, lostFocus, mouseDown, mouseDrag, mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll, prepareImage, prepareImage, printAll, remove, removeComponentListener, removeFocusListener, removeHierarchyBoundsListener, removeHierarchyListener, removeInputMethodListener, removeKeyListener, removeMouseListener, removeMouseMotionListener, removeMouseWheelListener, removePropertyChangeListener, removePropertyChangeListener, repaint, repaint, repaint, repaint, requestFocus, requestFocusInWindow, reshape, resize, resize, setBackground, setBounds, setComponentOrientation, setDropTarget, setEnabled, setFocusable, setFocusTraversalKeysEnabled, setForeground, setIgnoreRepaint, setLocale, setLocation, setLocation, setMaximumSize, setMinimumSize, setName, setPreferredSize, setSize, setSize, setVisible, show, size, toString, transferFocus, transferFocusUpCycle

Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, wait, wait, wait

Constructor Detail

KeyGrabberDialog

```
public KeyGrabberDialog(GizmoConnectionsDialog Owner)
```

Creates a KeyGrabberDialog with the parent Owner.

Parameters:

`Owner` -

Method Detail

keyPressed

```
public void keyPressed(java.awt.event.KeyEvent e)
```

Handles keyPress events

Specified by:

`keyPressed` in interface `java.awt.event.KeyListener`

---

keyTyped

```
public void keyTyped(java.awt.event.KeyEvent e)
```

Handles keyType events

Specified by:

`keyTyped` in interface `java.awt.event.KeyListener`

---

keyReleased

```
public void keyReleased(java.awt.event.KeyEvent e)
```

Handles keyRelease events

Specified by:

`keyReleased` in interface `java.awt.event.KeyListener`

---

gizmoball.ui

Class LevelPropertyEditor

```
java.lang.Object
  └ java.awt.Component
      └ java.awt.Container
          └ java.awt.Window
              └ java.awt.Dialog
                  └ javax.swing.JDialog
                      └ gizmoball.ui.LevelPropertyEditor
```

All Implemented Interfaces:

java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.Accessible, javax.swing.RootPaneContainer, javax.swing.WindowConstants

---

```
public class LevelPropertyEditorextends javax.swing.JDialog
```

Handles the loading of level properties and their editing.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

See Also:

Serialized Form

Field Summary

Fields inherited from class java.awt.Component
BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT, TOP_ALIGNMENT

Fields inherited from interface javax.swing.WindowConstants
DISPOSE_ON_CLOSE, DO_NOTHING_ON_CLOSE, EXIT_ON_CLOSE, HIDE_ON_CLOSE

Fields inherited from interface java.awt.image.ImageObserver
ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH

Constructor Summary

LevelPropertyEditor(Level lvl) Loads the LevelProperty Editor with Level lvl.

Method Summary

Methods inherited from class javax.swing.JDialog
getAccessibleContext, getContentPane, getDefaultCloseOperation, getGlassPane, getJMenuBar, getLayeredPane, getRootPane, isDefaultLookAndFeelDecorated, remove, setContentPane, setDefaultCloseOperation, setDefaultLookAndFeelDecorated, setGlassPane, setJMenuBar, setLayeredPane, setLayout, update

Methods inherited from class java.awt.Dialog
addNotify, getTitle, hide, isModal, isResizable, isUndecorated, setModal, setResizable, setTitle, setUndecorated, show

Methods inherited from class java.awt.Window

addPropertyChangeListener, addPropertyChangeListener, addWindowFocusListener, addWindowListener, addWindowStateListener, applyResourceBundle, applyResourceBundle, createBufferStrategy, createBufferStrategy, dispose, getBufferStrategy, getFocusableWindowState, getFocusCycleRootAncestor, getFocusOwner, getFocusTraversalKeys, getGraphicsConfiguration, getInputContext, getListeners, getLocale, getMostRecentFocusOwner, getOwnedWindows, getOwner, getToolkit, getWarningString, getWindowFocusListeners, getWindowListeners, getWindowStateListeners, isActive, isAlwaysOnTop, isFocusableWindow, isFocusCycleRoot, isFocused, isLocationByPlatform, isShowing, pack, postEvent, removeWindowFocusListener, removeWindowListener, removeWindowStateListener, setAlwaysOnTop, setBounds, setCursor, setFocusableWindowState, setFocusCycleRoot, setLocationByPlatform, setLocationRelativeTo, toBack, toFront

Methods inherited from class java.awt.Container

add, add, add, add, add, addContainerListener, applyComponentOrientation, areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt, findComponentAt, getAlignmentX, getAlignmentY, getComponent, getComponentAt, getComponentAt, getComponentCount, getComponents, getComponentZOrder, getContainerListeners, getFocusTraversalPolicy, getInsets, getLayout, getMaximumSize, getMinimumSize, getMousePosition, getPreferredSize, insets, invalidate, isAncestorOf, isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout, list, list, locate, minimumSize, paint, paintComponents, preferredSize, print, printComponents, remove, removeAll, removeContainerListener, removeNotify, setComponentZOrder, setFocusTraversalKeys, setFocusTraversalPolicy, setFocusTraversalPolicyProvider, setFont, transferFocusBackward, transferFocusDownCycle, validate

Methods inherited from class java.awt.Component

action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener, addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener, addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage, contains, contains, createImage, createImage, createVolatileImage, createVolatileImage, disable, dispatchEvent, enable, enable, enableInputMethods, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, getBackground, getBounds, getBounds, getColorModel, getComponentListeners, getComponentOrientation, getCursor, getDropTarget, getFocusListeners, getFocusTraversalKeysEnabled, getFont, getFontMetrics, getForeground, getGraphics, getHeight, getHierarchyBoundsListeners, getHierarchyListeners, getIgnoreRepaint, getInputMethodListeners, getInputMethodRequests, getKeyListeners, getLocation, getLocation, getLocationOnScreen, getMouseListeners, getMouseMotionListeners, getMousePosition, getMouseWheelListeners, getName, getParent, getPeer, getPropertyChangeListeners, getPropertyChangeListeners, getSize, getSize, getTreeLock, getWidth, getX, getY, gotFocus, handleEvent, hasFocus, imageUpdate, inside, isBackgroundSet, isCursorSet, isDisplayable, isDoubleBuffered, isEnabled, isFocusable, isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet, isLightweight, isMaximumSizeSet, isMinimumSizeSet, isOpaque, isPreferredSizeSet, isValid, isVisible, keyDown, keyUp, list, list, list, location, lostFocus, mouseDown, mouseDrag, mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll, prepareImage, prepareImage, printAll, remove, removeComponentListener, removeFocusListener, removeHierarchyBoundsListener, removeHierarchyListener, removeInputMethodListener, removeKeyListener, removeMouseListener, removeMouseMotionListener, removeMouseWheelListener, removePropertyChangeListener, removePropertyChangeListener, repaint, repaint, repaint, repaint, requestFocus, requestFocusInWindow, reshape, resize, resize, setBackground, setBounds, setComponentOrientation, setDropTarget, setEnabled, setFocusable, setFocusTraversalKeysEnabled, setForeground, setIgnoreRepaint, setLocale, setLocation, setLocation, setMaximumSize, setMinimumSize, setName, setPreferredSize, setSize, setSize, setVisible, show, size, toString, transferFocus, transferFocusUpCycle

Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, wait, wait, wait

Constructor Detail

LevelPropertyEditor

```
public LevelPropertyEditor(Level lvl)
```

Loads the LevelProperty Editor with Level lvl. Loads lvl's properties into their respective JTextFields, and saves them when save is clicked.

Parameters:

`lvl` -

---

gizmoball.ui

Class MidiSong

```
java.lang.Object
  └ gizmoball.ui.Song
      └ gizmoball.ui.MidiSong
```

```
public class MidiSongextends Song
```

A MidiSong is a Song that represents a file that can be played by javax.sound.midi, such as a MIDI file.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

MidiSong(java.lang.String filename) Creates a new MidiSong from the given file.	

Method Summary

void	**play**() Plays the given song from wherever it was last paused, or from the beginning.
void	**stop**() Stop the given song from playing; make sure that when it is next played it starts from the beginning.

Methods inherited from class gizmoball.ui.Song

fromFilename

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

MidiSong

```
public MidiSong(java.lang.String filename)
```

Creates a new MidiSong from the given file. Using Song.fromFilename instead is recommended.

Parameters:

`filename` - The file to open; caller is responsible for OS-correct path separators

Method Detail

play

```
public void play()
```

Plays the given song from wherever it was last paused, or from the beginning. (Note: pause not yet supported, so actually always from the beginning for now.)

Specified by:

`play` in class `Song`

---

stop

```
public void stop()
```

Stop the given song from playing; make sure that when it is next played it starts from the beginning.

Specified by:

`stop` in class `Song`

---

gizmoball.ui

Class SampledSong

```
java.lang.Object
  └ gizmoball.ui.Song
      └ gizmoball.ui.SampledSong
```

```
public class SampledSongextends Song
```

A SampledSong is a Song that represents a file that can be played by javax.sound.sampled, such as a WAV, AIFF, or AU file.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

SampledSong(java.lang.String filename) Creates a new SampledSong from the given file.	

Method Summary

void	**play**() Plays the given song from wherever it was last paused, or from the beginning.
void	**stop**() Stop the given song from playing; make sure that when it is next played it starts from the beginning.

Methods inherited from class gizmoball.ui.Song
fromFilename

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

SampledSong

public **SampledSong**(java.lang.String filename)

Creates a new SampledSong from the given file. Using Song.fromFilename instead is recommended.

Parameters:

filename - The file to open; caller is responsible for OS-correct path separators

Method Detail

play

public void **play**()

Plays the given song from wherever it was last paused, or from the beginning. (Note: pause not yet supported, so actually always from the beginning for now.)

Specified by:

play in class Song

---

stop

public void **stop**()

Stop the given song from playing; make sure that when it is next played it starts from the beginning.

Specified by:

stop in class Song

---

gizmoball.ui

Class Song

```
java.lang.Object
  └ gizmoball.ui.Song
```

Direct Known Subclasses:

MidiSong, SampledSong

```
public abstract class Songextends java.lang.Object
```

A Song represents a single audio file (sampled or MIDI); it can be played or stopped. Currently supports what javax.sound.midi and javax.sound.sampled supports: MIDI, WAV, AIFF, and AU.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

Song()	

Method Summary

static Song	**fromFilename**(java.lang.String filename) Factor method to create a new MidiSong or SampledSong from a filename.
abstract void	**play**() Plays the given song from wherever it was last paused, or from the beginning.
abstract void	**stop**() Stop the given song from playing; make sure that when it is next played it starts from the beginning.

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

Song

```
public Song()
```

Method Detail

fromFilename

```
public static Song fromFilename(java.lang.String filename)
```

Factor method to create a new MidiSong or SampledSong from a filename. Current heuristic is that it makes a MidiSong if the filename ends with .mid (case insensitive), and a SampledSong otherwise. Likely to throw a RuntimeException if any of a whole bunch of things goes wrong. (This probably should be changed to throwing a checked SongException or something.)

Parameters:

`filename` - The file to open; caller is responsible for OS-correct path separators

Returns:

a new MidiSong or SampledSong

---

play

```
public abstract void play()
```

Plays the given song from wherever it was last paused, or from the beginning. (Note: pause not yet supported, so actually always from the beginning for now.)

---

stop

```
public abstract void stop()
```

Stop the given song from playing; make sure that when it is next played it starts from the beginning.

gizmoball.ui

Class TextMode

```
java.lang.Object
  └ gizmoball.ui.TextMode
```

```
public class TextModeextends java.lang.Object
```

Runs an ASCII-art version of the game.

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Constructor Summary

TextMode()	

Method Summary

static void	**main**(java.lang.String[] args) Runs the game on the example file.

Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

TextMode

```
public TextMode()
```

Method Detail

main

```
public static void main(java.lang.String[] args)
                throws java.lang.InterruptedException
```

Runs the game on the example file.

Parameters:

`args` -

Throws:

`java.lang.InterruptedException`

---

gizmoball.ui

Class Theme

```
java.lang.Object
  └ gizmoball.ui.Theme
```

```
public class Themeextends java.lang.Object
```

A singleton class used to store and retrieve all images associated with gizmoball, as well as loading themes

Author:

David Glasser, Dennis V. Perepelitsa, Ed Platt, Clayton Sims

Method Summary

void	**addMap**(java.lang.String keyName, java.util.ArrayList<java.awt.Image> keyImages) Adds a set of images to the images associated with a given gizmo
static void	**createFromFile**(java.lang.String filename) Creates the images associated with each Gizmo in a Theme
static java.lang.String	**getDirectoryOfFile**(java.lang.String filename) Gets the text after last file seperator of the filename String
java.util.List<java.awt.Image>	**getImageArray**(java.lang.String gizmoName) Gets an array of images from the current theme associated with the given gizmo
static Theme	**getInstance**() Returns the instance of the Theme Singleton
Song	**getMainSong**() Gets the theme's main song.
void	**setMainSong**(Song s) Sets the theme's main song.

Methods inherited from class java.lang.Object
equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Method Detail

getInstance

```
public static Theme getInstance()
```

Returns the instance of the Theme Singleton

---

createFromFile

```
public static void createFromFile(java.lang.String filename)
```

Creates the images associated with each Gizmo in a Theme

Parameters:

`filename` - The filename of the theme to load

---

getImageArray

```
public java.util.List<java.awt.Image> getImageArray(java.lang.String gizmoName)
```

Gets an array of images from the current theme associated with the given gizmo

Parameters:

`gizmoName` - The name of the gizmo that images are to be returned for

Returns:

list images representing the gizmo, or null if there are no images; never returns an empty list

---

addMap

```
public void addMap(java.lang.String keyName,
                   java.util.ArrayList<java.awt.Image> keyImages)
```

Adds a set of images to the images associated with a given gizmo

Parameters:

`keyName` - The name of the gizmo or key to associate the images with

`keyImages` - The images

getDirectoryOfFile

```
public static java.lang.String getDirectoryOfFile(java.lang.String filename)
```

Gets the text after last file seperator of the filename String

setMainSong

```
public void setMainSong(Song s)
```

Sets the theme's main song.

Parameters:

s -

getMainSong

```
public Song getMainSong()
```

Gets the theme's main song.

Returns: