Package model

Class Piece

java.lang.Object
    model.Piece

Direct Known Subclasses:

BucketZombie, ConeheadZombie, GiantSunflower, Peashooter, Repeater, Sunflower, Threepeater, TwinSunflower, Wallnut, Zombie

---

```
public abstract class Piece
extends java.lang.Object
```

The Piece class provides the PlantsVSZombie game with the appropriate pieces that populate squares on the game board and perform certain actions that help or hinder the player in their pursuit to win the game. This class includes two constructors, one constructor that will build a Piece given a PlantPiece parameter and another constructor that will build a Piece given a char shortName of a PlantPiece. Additionally, this class includes getter and setters such as a getName(), getShortName(), getCost(), getHealth(), setHealth(), and getAttack(). Piece also includes a toString() method. In version 3.0, Pieces include the "PEASHOOTER", "ZOMBIE", "SUNFLOWER", "REPEATER", "THREEPEATER", "WALLNUT", "TWINSUNFLOWER", "GIANTSUNFLOWER", "BUCKETZOMBIE", and "CONEHEADZOMBIE". Each piece includes a (int) cost, (int) health, (int) attack, (char) shortName and (PlantPieces) name. The PEASHOOTER Piece is a friendly offensive entity and can aide the player by damaging ZOMBIE entities that appear on the board. The REPEATER Piece is a friendly offensive entity, stronger than the PEASHOOTER, and can aide the player by damaging ZOMBIE entities that appear on the board. The THREEPEATER Piece is a friendly offensive entity, stronger than the REPEATER, and can aide the player by damaging ZOMBIE entities that appear on the board. The SUNFLOWER Piece is a friendly non-offensive entity and can aide the player by granting money to the play per turn, which the play can use to buy more friendly entities. The TWINSUNFLOWER Piece is a friendly non-offensive entity and can aide the player by granting money to the play per turn, more money than the SUNFLOWER, which the play can use to buy more friendly entities. The GIANTSUNFLOWER Piece is a friendly non-offensive entity and can aide the player by granting money to the play per turn, more money than the TWINSUNFLOWER, which the play can use to buy more friendly entities. The ZOMBIE Piece is an offensive enemy entity that can move and will attack friendly pieces in its way until it reaches the end of the board, defeating the player. The CONEHEADZOMBIE is an offensive enemy entity, stronger than the ZOMBIE, that can move and will attack friendly pieces in its way until it reaches the end of the board, defeating the player. The BUCKETZOMBIE Piece is an offensive enemy entity, stronger than the CONEHEADZOMBIE, that can move and will attack friendly pieces in its way until it reaches the end of the board, defeating the player.

Version:

3.0

Author:

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Field Summary

private int	health
private java.lang.String	name
private char	shortName

Constructor Summary

Constructors

Constructor	Description
Piece(java.lang.String name, char shortName, int health, int attack, int cost)	A constructor for the class Piece that takes the String name, character shortName, integer health, integer attack, integer cost of a Piece object and creates it.

Method Summary

All Methods Instance Methods Abstract Methods Concrete Methods

Modifier and Type	Method	Description
abstract Piece	copy()	Used for a deep-copy in order to allow for proper undo/redo
boolean	equals (java.lang.Object o)	When equals() method is called, it returns a true boolean condition if Object o and this Object are the same piece or have the same values.
int	getAttack()	When getAttack() method is called, it returns the attack damage (int) that the PlantPiece can execute.
int	getCost()	When getCost() method is called, it returns an integer (int) of how much the PlantPiece costs to place on the board.
int	getHealth()	When getHealth() method is called, it returns an integer (int) of how much health the PlantPiece currently has on the board.
javax.swing.ImageIcon	getImage()	Retrieving the Pieces' Image

void	**setAttack**(int attack)	When setAttack() method is called, it changes the value of the PlantPiece attack (int) to a new value.
void	**setCost**(int cost)	
void	**setHealth**(int health)	When setHealth() method is called, it changes the value of the PlantPiece health (int) to a new value, one that has taken damage.
java.lang.String	**toString**()	When toString() method is called, it returns the string form of the this PlantPieces health to be displayed on the console.

Methods inherited from class java.lang.Object

clone, finalize, getClass, hashCode, notify, notifyAll, wait, wait, wait

Field Detail

name

```
private java.lang.String name
```

shortName

```
private char shortName
```

health

```
private int health
```

attack

```
private int attack
```

Constructor Detail

Piece

```
public Piece(java.lang.String name,
             char shortName,
             int health,
             int attack,
             int cost)
```

A constructor for the class Piece that takes the String name, character shortName, integer health, integer attack, integer cost of a Piece object and creates it.

Parameters:

`name` - The name of the Piece in all caps, a string.

`shortName` - The character of the Piece to be represented on the game board, a char.

`health` - The health points of the Piece, an int.

`attack` - The attack points of the Piece that it can afflict on other Pieces, an int.

`cost` - The cost of purchasing the Piece, an int.

Method Detail

copy

```
public abstract Piece copy()
```

Used for a deep-copy in order to allow for proper undo/redo

Returns:

Deep copy of the pieces

getName

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

When getName() method is called, it returns the PlantPieces object called name, which is a String.

```
public char getShortName()
```

When getShortName() method is called, it returns the character (char) that is associated with the PlantPieces object.

Returns:

shortName A char associated with the PlantPieces object. This char is represented on the board as the piece.

getCost

```
public int getCost()
```

When getCost() method is called, it returns an integer (int) of how much the PlantPiece costs to place on the board. This cost is then deducted from the players moneyPouch in the GameBoard class. This method only pertains to the friendly entities on the board that the player can manipulate such as the "PEASHOOTER" and the "SUNFLOWER". The PlantPiece "ZOMBIE", "CONEHEADZOMBIE" and "BUCKETZOMBIE" doesn't include a cost due to the fact that it is not a friendly entity and therefore is not bought or placed by the player.

Returns:

cost An int of the price of each friendly PlantPiece that can be placed on the board.

setCost

```
public void setCost(int cost)
```

Parameters:

`cost` -

getHealth

```
public int getHealth()
```

When getHealth() method is called, it returns an integer (int) of how much health the PlantPiece currently has on the board. Every piece starts off on the board with full health, regardless of it being friendly or an enemy. As a piece takes damage, the health of the piece will fall, as it reaches zero the PlantPiece is removed from the board, aka killed. This method is useful for the GameBoard class to know whether a PlantPiece on the board is still alive and what pieces have taken damage. Depending on the PlantPiece type, they will start off with a different starting health.

```
public void setHealth(int health)
```

When setHealth() method is called, it changes the value of the PlantPiece health (int) to a new value, one that has taken damage. This method is useful for the GameBoard class to change a PlantPiece health if they take damage, if health is set to zero or below, the PlantPiece is removed from the board aka 'killed'.

Parameters:

`health` - An int of the current health after damage has been taken to the PlantPiece.

getAttack

```
public int getAttack()
```

When getAttack() method is called, it returns the attack damage (int) that the PlantPiece can execute. When an offensive PlantPiece object, like a "ZOMBIE" or a "PERSHOOTER" executes an attack on its quarry, the victim will have its health reduced by that of the amount of the attack damage.

Returns:

attack An int of the attack damage that an offensive PlantPiece can execute on its target.

setAttack

```
public void setAttack(int attack)
```

When setAttack() method is called, it changes the value of the PlantPiece attack (int) to a new value. This method is useful for the GameBoard class to change a PlantPiece attack if they are upgraded.

Parameters:

`attack` -

toString

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

When toString() method is called, it returns the string form of the this PlantPieces health to be displayed on the console. This is useful for the player to know what PlantPieces have currently taken damage and how a player should respond.

Overrides:

`toString` in class `java.lang.Object`

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

When equals() method is called, it returns a true boolean condition if Object o and this Object are the same piece or have the same values. This method returns false if Object o is a null value or if it is not a Piece at all.

Overrides:

`equals` in class `java.lang.Object`

Parameters:

`o` - The object to be analyzed.

Returns:

boolean

getImage

```
public javax.swing.ImageIcon getImage()
```

Retrieving the Pieces' Image

Returns:

Image of the Piece