Class Levels

java.lang.Object
    greenfoot.World
        Levels

```
public class Levels
extends greenfoot.World
```

Levels is a class that deals with starting the game, setting up the menu, and displaying every single level and screen to the World.

Version:
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Author:
Jerry Zhu

Constructor Detail

`public Levels()`
Creates a new levels object where the user can interact with to start the game and access menus and levels
Initializes all instance variables of the object.

Method Detail

`public void act()`
Act - do whatever the Levels wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Checks for keys pressed in the title screen and switches screens when necessary
Overrides:
`act` in class `greenfoot.World`

`public void started()`
Play the title screen music when the game starts and when prompted
Overrides:
`started` in class `greenfoot.World`

`private void playMainMusic()`
Play the main level music when prompted

`public void setupLevel(int lvl)`
Sets up each level depending on where Mario is at in the World
Parameters:
lvl - the level number that needs to be set up

`public void worldColorLevel()`
Sets the world background color to that of each level

`public void getScoreCounter()`
Getter method to get the score counter private variable

`public void getLifeCounter()`
Getter method to get the life counter private variable

`public void getCoinCounter()`
Getter method to get the coin counter private variable

`public void HUD()`
Sets up the HUD images and counters

Class Background

java.lang.Object
    greenfoot.Actor
        Background

```
public class Background
extends greenfoot.Actor
```

Background is a superclass that contains all the general methods for any subclass or object that is displayed to the background, and has protected methods that can be inherited by these subclasses.

Version:
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Author:
Jerry Zhu

Constructor Detail

`public Background()`
Creates a new background object that has background methods. Usually is not called and is instead inherited by a subclass.

Method Detail

`public void act()`
Act - do whatever the Background wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Overrides:
`act` in class `greenfoot.Actor`

Class Mover

java.lang.Object
    greenfoot.Actor
        Mover

```
public class Mover
extends greenfoot.Actor
```

Mover is a superclass that contains all the general methods for any subclass or object that needs to move, and has protected methods that can be inherited by those subclasses.

Version:
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Author:
Jerry Zhu

Constructor Detail

`public Mover()`
Creates a new Mover object that has move methods. Usually is not called and is instead inherited by a subclass.

Method Detail

`public void act()`
Act - do whatever the Mover wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Overrides:
`act` in class `greenfoot.Actor`

`protected void moveRight()`
Moves the object to the right

`protected void moveLeft()`
Moves the object to the left

`protected void moveUp()`
Moves the object up

`protected void moveDown()`
Moves the object down

`protected void moveGoomba()`
Protected method to move the Goomba object for inheritance

`protected void moveUpAndDown()`
Protected method to move the vertical platform object for inheritance

protected void moveHFPlatform()
Protected method to move the horizontal platform object for inheritance

Class Screen

java.lang.Object
    greenfoot.Actor
        Screen

```
public class Screen
extends greenfoot.Actor
```

Screen is a superclass that contains all the general methods for any subclass or object that is a screen, and has protected methods that can be inherited by those subclasses.

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public Screen()`
Creates a new Screen object that has screen methods. Usually is not called and is instead inherited by a subclass.

Method Detail

`public void act()`
Act - do whatever the Screen wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Overrides:
`act` in class `greenfoot.Actor`

Class BgItem

java.lang.Object
    greenfoot.World
        Background
            BgItem

```
public class BgItem
extends Background
```

BgItem is a class that deals with all miscellaneous background objects that are displayed to the World.

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public BgItem()`
Creates a new BgItem object that can be displayed to the World background.

Method Detail

`public void act()`
Act - do whatever the BgItem wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Overrides:
`act` in class `Background`

Class Coin

java.lang.Object
    greenfoot.Actor
        Background
            Coin

```
public class Coin
extends Background
```

Coin is a class that deals with the displaying, animating, and collisions of coins with other objects in the World.

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public Coin()`
Creates a new coin object that can be displayed to the screen and updates after every iteration

Method Detail

`public void act()`
Act - do whatever the Coin wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Animates coin and checks for collisions.
Overrides:
`act` in class `Background`

`private void animateCoin()`
Animates the coin object at every iteration by showing different coin images

`private void checkCollision()`
Check for collision with the Mario object and remove the coin if intersection exists

Class Counter

java.lang.Object
    greenfoot.Actor
        Background
            Counter

---

public class Counter
extends Background

Counter is a class that deals with the life, score, and coin counters in the world

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public Counter()`
Creates a new counter object that keeps tracks of and updates the score, coins, or lives.

`public Counter(String text)`
Overloaded method for creating a new counter object with the prefix set.
Parameters:
text - the predefined value for the prefix text of the counter object

Method Detail

`public void act()`
Act - do whatever the Counter wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Overrides:
`act` in class `Background`

`private void updateImage()`
Updates the counter object image with the instance variables updated and changed.

`public void setTextColor()`
Updates the text color of the counter object image.

`public void setPrefix()`
Updates the prefix text of the counter object image.

`public void add()`
Increases the value of the counter object.

`public void subtract()`
Decreases the value of the counter object.

`public void setValue()`
Setter method for the value of the counter object.

`public void getValue()`
Getter method for the value of the counter object.

Class FlagPole

java.lang.Object
    greenfoot.Actor
        Background
            FlagPole

```
public class FlagPole
extends Background
```

FlagPole is a class that deals with the displaying of the flagpole object to the World.

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public FlagPole()`
Creates a new FlagPole object that can be displayed to the screen and can check for collisions with other objects.

Method Detail

`public void act()`
Act - do whatever the FlagPole wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Overrides:
`act` in class `Background`

Class HUD

java.lang.Object
    greenfoot.Actor
        Background
            HUD

```
public class HUD
extends Background
```

HUD is a class that deals with the displaying, rendering and updating of the counter images to the screen.

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public HUD()`
Creates a new HUD object with an image that can be displayed to the screen to correspond to every counter needed

Method Detail

`public void act()`
Act - do whatever the HUD wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Overrides:
`act` in class `Background`

Class GameEnd

java.lang.Object
    greenfoot.Actor
        Screen
            GameEnd

```
public class WinScreen
extends Screen
```

GameEnd is a class that deals with the displaying of the game end screen after the user chooses to exit out of the game once they have won/lost.

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public GameEnd()`
Creates a new GameEnd object that can be displayed to the World when prompted.

Method Detail

`public void act()`
Act - do whatever the GameEnd wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Overrides:
`act` in class `Screen`

Class Instructions

java.lang.Object
    greenfoot.Actor
        Screen
            Instructions

```
public class Instructions
extends Screen
```

Instructions is a class that deals with the displaying of the instructions screen to the World.

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public Instructions()`
Creates a new Instructions object that can be displayed to the World when prompted.

Method Detail

`public void act()`
Act - do whatever the Coin wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Overrides:
`act` in class `Screen`

Class LoseScreen

java.lang.Object
    greenfoot.Actor
        Screen
            LoseScreen

```
public class LoseScreen
extends Screen
```

LoseScreen is a class that deals with the displaying of the lose screen to the World when Mario loses the game.

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public TitleScreen()`
Creates a new TitleScreen object that can be displayed to the World when prompted.

Method Detail

`public void act()`
Act - do whatever the LoseScreen wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Overrides:
`act` in class `Screen`

Class TitleScreen

java.lang.Object
    greenfoot.Actor
        Screen
            TitleScreen

```
public class TitleScreen
extends Screen
```

TitleScreen is a class that deals with the displaying of the title screen to the World.

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public TitleScreen()`
Creates a new TitleScreen object that can be displayed to the screen and updates after every iteration

Method Detail

`public void act()`
Act - do whatever the TitleScreen wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Overrides:
`act` in class `Screen`

Class WinScreen

java.lang.Object
    greenfoot.Actor
        Screen
            WinScreen

```
public class WinScreen
extends Screen
```

WinScreen is a class that deals with the displaying of the win screen to the World when Mario wins the game.

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public WinScreen()`
Creates a new WinScreen object that can be displayed to the World when prompted.

Method Detail

`public void act()`
Act - do whatever the WinScreen wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Overrides:
`act` in class `Screen`

Class Goomba

java.lang.Object
    greenfoot.Actor
        Mover
            Goomba

```
public class Goomba
extends Mover
```

Goomba is a class that deals with the movement and collisions concerning the Goomba enemies in the World.

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public Goomba()`
Creates a new Goomba enemy object that can be displayed and updated at every iteration.

Method Detail

`public void act()`
Act - do whatever the Goomba wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Moves, animates movement and checks for collisions.
Overrides:
`act` in class `Mover`

`private void animateGoomba()`
Animate the movement of the Goomba object.

`private void collisionDetection()`
Detect collisions from the player object with the Goomba enemy.

Class GoombaDead

java.lang.Object
    greenfoot.Actor
        Mover
            Goomba
                GoombaDead

```
public class GoombaDead
extends Goomba
```

GoombaDead is a subclass of Goomba for managing the actions when the Goomba enemy is killed by Mario.

Version:
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Author:
Jerry Zhu

Constructor Detail

`public GoombaDead()`
Creates a new GoombaDead object that animates itself when Mario kills the Goomba enemy on the screen

Method Detail

`public void act()`
Act - do whatever the GoombaDead wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Animates the dead goomba.
Overrides:
`act` in class `Screen`

`private void animateDeath()`
Animates the death of the Goomba and performs the necessary operations once prompted when the Goomba is killed

Class Ground

java.lang.Object
    greenfoot.Actor
        Mover
            Ground

```
public class Ground
extends Mover
```

Ground is a class that deals with the displaying and updating of the ground object in the World that the player Mario will stand on, including any moving platforms.

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public Ground()`
Creates a new Ground object that can be displayed to the screen and has a type and collision detection.

Method Detail

`public void act()`
Act - do whatever the Ground wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Checks for collisions and/or move the Ground object
Overrides:
`act` in class `Background`

`private void steppingTileCollisionDetection()`
Checks if the stepping tile has collided with the Player Mario, and performs the necessary action.

Class Mario

java.lang.Object
    greenfoot.Actor
        Mover
            Mario

```
public class Mario
extends Mover
```

Mario is a class that deals with the player Mario and its interactions in the World.

Version:
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Author:
Jerry Zhu

Constructor Detail

`public Mario()`
Creates a new Mario player object that can move and interact with the other objects in the World.

Method Detail

`public void act()`
Act - do whatever the Mario wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Checks if the player won or lost, then moves, animates, and checks for collisions.
Overrides:
`act` in class `Mover`

`private boolean checkWin()`
Check if the player has won the game, and update the World accordingly.

`private void boundary()`
Check if the player has reached any of the World boundaries.

`private void checkKeys()`
Check if the player has pressed any keys to move or jump.

`private void fall()`
Make the player fall from the screen if they are not standing on the ground.

`private void checkGround()`
Check if the player has reached the ground and no longer needs to fall.

`private void jump()`
Perform the necessary operations when the up key is pressed so the player can jump.

`private void playDead()`
Check if the player has died and play the death animation and switch the player object to MarioDead.

`private void playWin()`
Check if the player has won the game, play the death animation and switch the player object to MarioWin.

`private void walkRight()`
Move the player to the right and animate it.

`private void walkLeft()`
Move the player to the left and animate it.

Class MarioDead

java.lang.Object
    greenfoot.Actor
        Mover
            Mario
                MarioDead

`public class` **`MarioDead`**
`extends Mario`

MarioDead is a class that deals with the player Mario once they have died and lost the game.

Version:
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Author:
Jerry Zhu

Constructor Detail

`public MarioDead()`
Creates a new MarioDead object that can be displayed and animated when prompted.

Method Detail

`public void act()`
Act - do whatever the MarioDead wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Animates the MarioDead object.
Overrides:
`act` in class `Mario`

Class MarioWin

java.lang.Object
    greenfoot.Actor
        Mover
            Mario
                MarioWin

```
public class TitleScreen
extends Screen
```

MarioWin is a class that deals with the player Mario once they have won the game and reached the FlagPole.

Version:
December 2020
Author:
Jerry Zhu

Constructor Detail

`public MarioWin()`
Creates a new MarioWin object that can be displayed and animated when prompted.

Method Detail

`public void act()`
Act - do whatever the MarioWin wants to do. This method is called whenever the 'Act' or 'Run' button gets pressed in the environment.
Animates the MarioWin object.
Overrides:
`act` in class `Mario`