

# Analysis

# Attributes





## Attributes

```
class Player:  
    pass
```

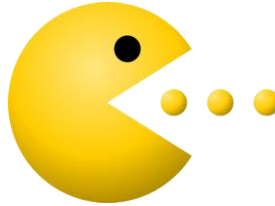
```
class Candy:  
    pass
```

```
class Enemy:  
    pass
```



## Attributes

# Player

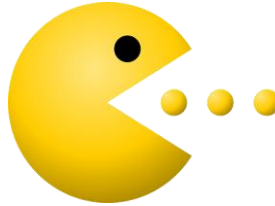


- The player has to be able to move up, move down, move left, and move right as long as it is not beyond the boundaries of the window (0, 450) both horizontally and vertically.
- The player initially has 10 lives and it displays a welcome message when the game starts.
- The player has a specific character assigned.
- The player is able to shoot candy. This candy acts like a bullet.



## Attributes

# Player



X Coordinate

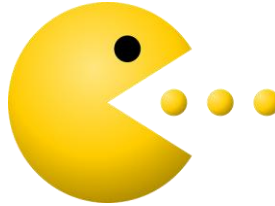
Y Coordinate

- The player has to be able to move up, move down, move left, and move right as long as it is not beyond the boundaries of the window (0, 450) both horizontally and vertically.
- The player initially has 10 lives and it displays a welcome message when the game starts.
- The player has a specific character assigned.
- The player is able to shoot candy. This candy acts like a bullet.



## Attributes

# Player



X Coordinate

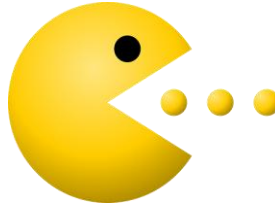
Y Coordinate

- The player has to be able to move up, move down, move left, and move right as long as it is not beyond the boundaries of the window (0, 450) both horizontally and vertically.
- The **Max X Coordinate** is 10 lives and it displays a welcome message when **Max Y Coordinate**.
- The player has a specific character assigned.
- The player is able to shoot candy. This candy acts like a bullet.



## Attributes

### Player



X Coordinate

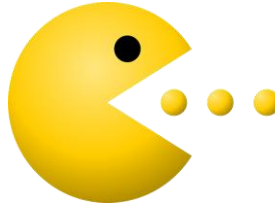
Y Coordinate

- The player has to be able to move up, move down, move left, and move right as long as it is not beyond the boundaries of the window (0, 450) both horizontally and vertically.
- The player initially has 10 **lives** and it displays a welcome message when the game starts.
- The player has a specific character assigned.
- The player is able to shoot candy. This candy acts like a bullet.



## Attributes

# Player



X Coordinate

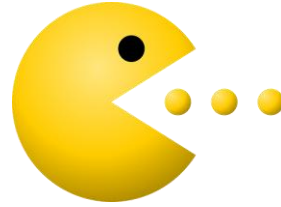
Y Coordinate

- The player has to be able to move up, move down, move left, and move right as long as it is not beyond the boundaries of the window (0, 450) both horizontally and vertically.
- The player initially has 10 **lives** and it displays a welcome message when the game starts.
- The player has a specific **character** assigned.
- The player is able to shoot candy. This candy acts like a bullet.



## Attributes

### Player



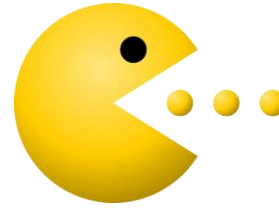
- ◆ X Coordinate
- ◆ Y Coordinate
- ◆ Number of Lives
- ◆ Character
- ◆ Max X Coordinate
- ◆ Max Y Coordinate





## Attributes

### Player



- ♦ X Coordinate
- ♦ Y Coordinate
- ♦ Number of Lives
- ♦ Character
- ♦ Max X Coordinate
- ♦ Max Y Coordinate

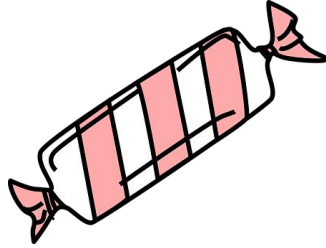
Instance Attributes

Class Attributes



## Attributes

# Candy

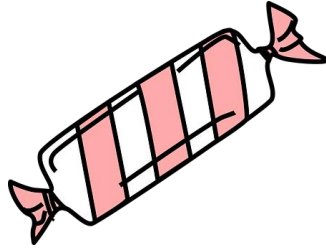


- The player is able to shoot candy.
- Candy acts like a bullet in the game. It moves either horizontally or vertically. This is determined when the instance is created.
- The speed of the candy has to be a specific number within a range from 5 to 45.



## Attributes

# Candy



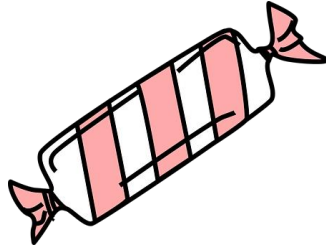
- The player is able to shoot candy. **X Coordinate** **Y Coordinate**
- Candy acts like a bullet in the game. It moves either horizontally or vertically. This is determined when the instance is created.
- The speed of the candy has to be a specific number within a range from 5 to 45.





## Attributes

# Candy

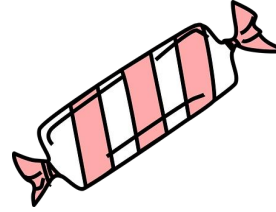


- The player is able to shoot candy.
- Candy acts like a bullet in the game. It **moves either horizontally or vertically**. This is determined when the instance is created.
- The **speed** of the candy has to be a specific number within a range from 5 to 45.



## Attributes

### Candy

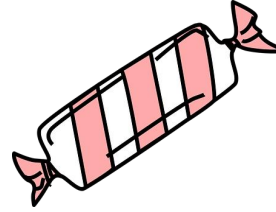


- ◆ X Coordinate
- ◆ Y Coordinate
- ◆ Type of Movement
- ◆ Speed



## Attributes

### Candy



- ◆ X Coordinate
- ◆ Y Coordinate
- ◆ Type of Movement
- ◆ Speed

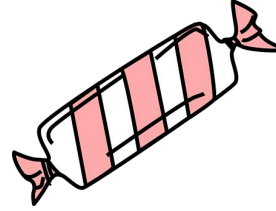
Instance Attributes

Class Attribute



## Attributes

### Candy



Doesn't  
Bounce

- ◆ X Coordinate
- ◆ Y Coordinate
- ◆ Type of Movement
- ◆ Speed

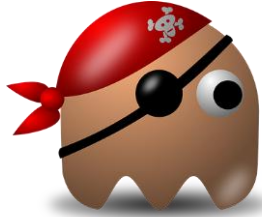
Instance Attributes

Class Attribute



## Attributes

# Enemy

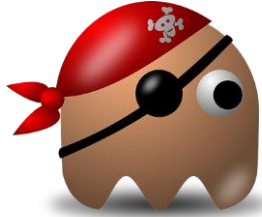


- Enemies are created at random locations, so their initial x coordinates and y coordinates are randomly generated integers in a range from 0 to 450.
- Enemies have a fixed direction of movement (vertical or horizontal).
- When an enemy reaches the end of the screen (0 or 450 vertically or horizontally), it changes direction (if the previous direction was vertical, it will now move horizontally and vice versa).
- The speed of the enemies depends on the difficulty of the game selected by the human player, and it is determined when the instances are created.
- Enemies initially have 15 lives.





## Attributes



# Enemy

X Coordinate

Y Coordinate

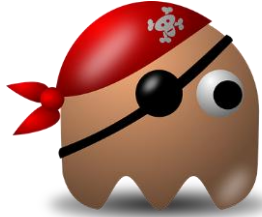
- Enemies are created at random locations, so their initial **x coordinates and y coordinates** are randomly generated integers in a range from 0 to 450.
- Enemies have a fixed **direction of movement (vertical or horizontal)**.
- When an enemy reaches the end of the screen (0 or 450 vertically or horizontally), it changes direction (if the previous direction was vertical, it will now move horizontally and vice versa).
- The **speed** of the enemies depends on the difficulty of the game selected by the human player, and it is determined when the instances are created.
- Enemies initially have 15 **lives**.





## Attributes

# Enemy

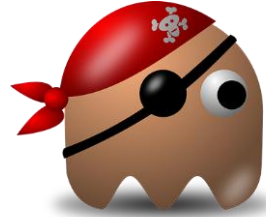


- Enemies are created at random locations, so their initial **x coordinates and y coordinates** are randomly generated integers in a range from 0 to 450.
- Enemies have a fixed **direction of movement (vertical or horizontal)**.
- When an enemy reaches the end of the screen (0 or 450 vertically or horizontally), it changes direction (if the previous direction was vertical, it will now move horizontally and vice versa). **Max X Coordinate** **Max Y Coordinate**
- The **speed** of the enemies depends on the difficulty of the game selected by the human player, and it is determined when the instances are created.
- Enemies initially have 15 **lives**.



## Attributes

### Enemy

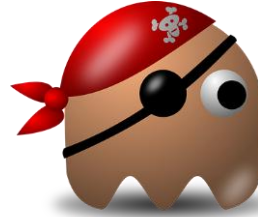


- ◆ X Coordinate
- ◆ Y Coordinate
- ◆ Type of Movement
- ◆ Speed
- ◆ Number of Lives
- ◆ Max X Coordinate
- ◆ Max Y Coordinate



## Attributes

### Enemy



- ◆ X Coordinate
- ◆ Y Coordinate
- ◆ Type of Movement
- ◆ Speed
- ◆ Number of Lives
- ◆ Max X Coordinate
- ◆ Max Y Coordinate

Instance Attributes

Class Attributes

```
import random

class Player:
    max_x = 450
    max_y = 450

    def __init__(self, x, y, character):
        self._x = x
        self._y = y
        self._num_lives = 10 # Initial value
        self._character = character

class Candy:
    speed = 40

    def __init__(self, x, y, type_of_movement="horizontal"):
        self._x = x
        self._y = y
        self._type_of_movement = type_of_movement

class Enemy:
    max_x = 450
    max_y = 450

    def __init__(self, x, y, speed, type_of_movement="vertical",):
        self._x = random.randint(0, max_x)
        self._y = random.randint(0, max_y)
        self._type_of_movement = type_of_movement
        self._num_lives = 15 # Initial value
        self._speed = speed
```



# Methods

