CATCH THE COIN

Game Design Development

King Awhaetoma

Overview

"Catch the Coin" will be a basic 2D arcade game to demonstrate the overall flow of a game using pygame and simpleGE.

The premise is extremely simple: The player is a boy named Kross, the boy character Kross appears near the bottom of the gameplay screen with a background image of a Beach side him. The user can move Kross to the left and right with the corresponding arrow keys.

A series of coins fall from the top of the screen. Each coin will fall from a different x position, and at a different speed between 3 and 8 pixels per frame straight down.

If Kross touches a coin, a positive sound effect is played. If a coin leaves the bottom of the screen, it is reset to a new random position at the top of the screen and a new falling speed. The game continues for a set period (ten seconds for playtesting purposes)

Features:

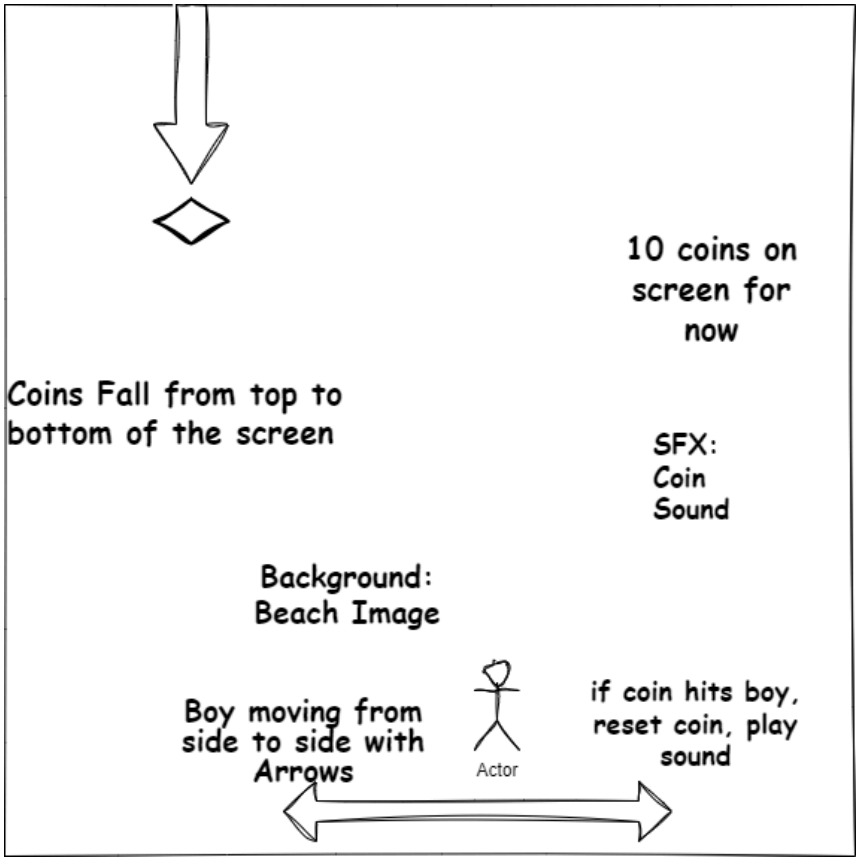
1. Player Control: The player can move the character left or right using the arrow keys on the keyboard.
2. Coin Collection: Coins fall from the top of the screen, and the player collects them by colliding with them using the character sprite.
3. Sound Effects: Sound effects are played when a coin is collected, enhancing the gameplay experience.
4. Background Music: Background music adds ambiance to the game and keeps the player engaged.
5. Scoring: Although not implemented in the provided code, scoring functionality can be added to keep track of the player's performance.

Code Structure:

The code is organized into three main classes:

1. Coin Class: Represents the coins that fall from the top of the screen. It inherits from the simpleGE.Sprite class and includes methods to reset the coin's position, check for collisions, and play a sound effect when collected.
2. Boy Class: Represents the player-controlled character. It also inherits from the simpleGE.Sprite class and includes a method to handle user input for moving the character left or right.
3. Game Class: Represents the game scene. It inherits from the simpleGE.Scene class and includes methods to initialize the game, process game logic, and handle collisions between the character and coins.

Game Play Background



Psuedocode of Game

```
# Import necessary Modules.
import pygame
import random
import simpleGE

# Define Coin class as a subclass of Sprite
class Coin(simpleGE.Sprite):
        # Constructor to initialize Coin objects
        function Coin(scene):
        Call super() constructor of Sprite
        Set image of the coin
        Set size of the coin
        Call reset() method to initialize position and speed
        Load coin sound effect

        # Method to reset the position and speed of the coin
        function reset():
        Set y position to 10
        Set x position to a random value within screen width
        Set dy (vertical speed) to a random value between 3 and 8

        # Method to check if the coin has gone out of bounds and reset if necessary
        function checkBounds():
        If bottom of the coin is greater than screen height:
```

```
        Call reset() to reset coin position

# Define Boy class as a subclass of Sprite
class Boy(simpleGE.Sprite):
        # Constructor to initialize Boy objects
        function Boy(scene):
        Call super() constructor of Sprite
        Set image of the boy
        Set size of the boy
        Set initial position of the boy
        Set move speed of the boy

        # Method to process user input for boy's movement
        function process():
        If left arrow key is pressed:
        Move the boy left
        If right arrow key is pressed:
        Move the boy right

# Define Game class as a subclass of Scene
class Game(simpleGE.Scene):
        # Constructor to initialize Game objects
        function Game():
        Call super() constructor of Scene
        Set background image of the scene
        Create a boy object
```

Create a list to store coin objects

Create 10 coin objects and add them to the list

Load and play background music

Method to process game logic

function process():

For each coin in the list of coins:

If the coin collides with the boy:

Play coin sound effect

Reset the position and speed of the coin

Define main function

function main():

Create a Game object

Start the game

Check if the script is being run as the main program

if __name__ is "__main__":

Call the main function

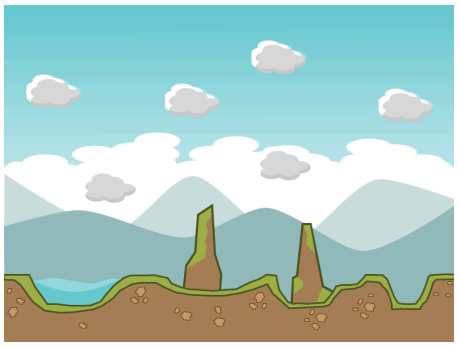
Future Improvements:

Implement a scoring system to track player's performance.
Add levels with increasing difficulty.
Include power-ups or obstacles to enhance gameplay variety.
Improve graphics and visual effects for a more immersive experience.

Conclusion:

The Coin Collector Game provides a simple yet engaging gaming experience suitable for players of all ages. With its intuitive controls, delightful sound effects, and challenging gameplay, it promises hours of entertainment and fun.

Game Assets:



Beach background from
https://opengameart.org/

Coin from
https://opengameart.org/

Boy character “Kross” from
https://opengameart.org/

Background Audio free open source from:
https://pixabay.com/music/search/genre/video%20games/

Coin sound free open source from
https://mixkit.co/free-sound-effects/coin/