Car Coin Craze

Python Co-design Project

Team No – 13

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INTRODUCTION :-

Car coin craze is a thrilling racing game that adds strategic features and changing difficulty and improved player participation. The player has to move the car, in which he/she has to collect the coins in the game without crashing from the AI-Baddie car and obstacles(cone) with constantly increasing speed with every coin he/she collects. Therefore Car Coin Craze offers an exhilarating and immersive racing experience to the players.

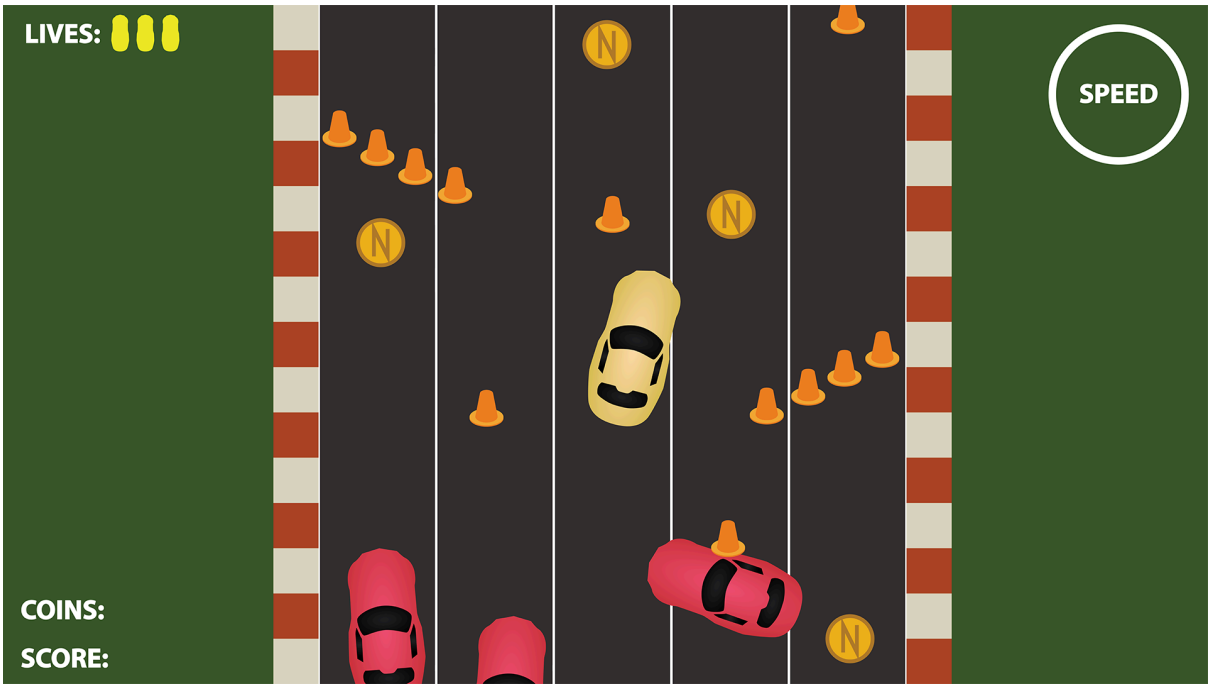
PROBLEM STATEMENT :-

Most coin-collecting race games have disappointing streaks of challenges, having depended on repetitive gameplay and sheer static difficulty. Many of them lack deep strategies, challenging artificial intelligence, and progressive difficulty,

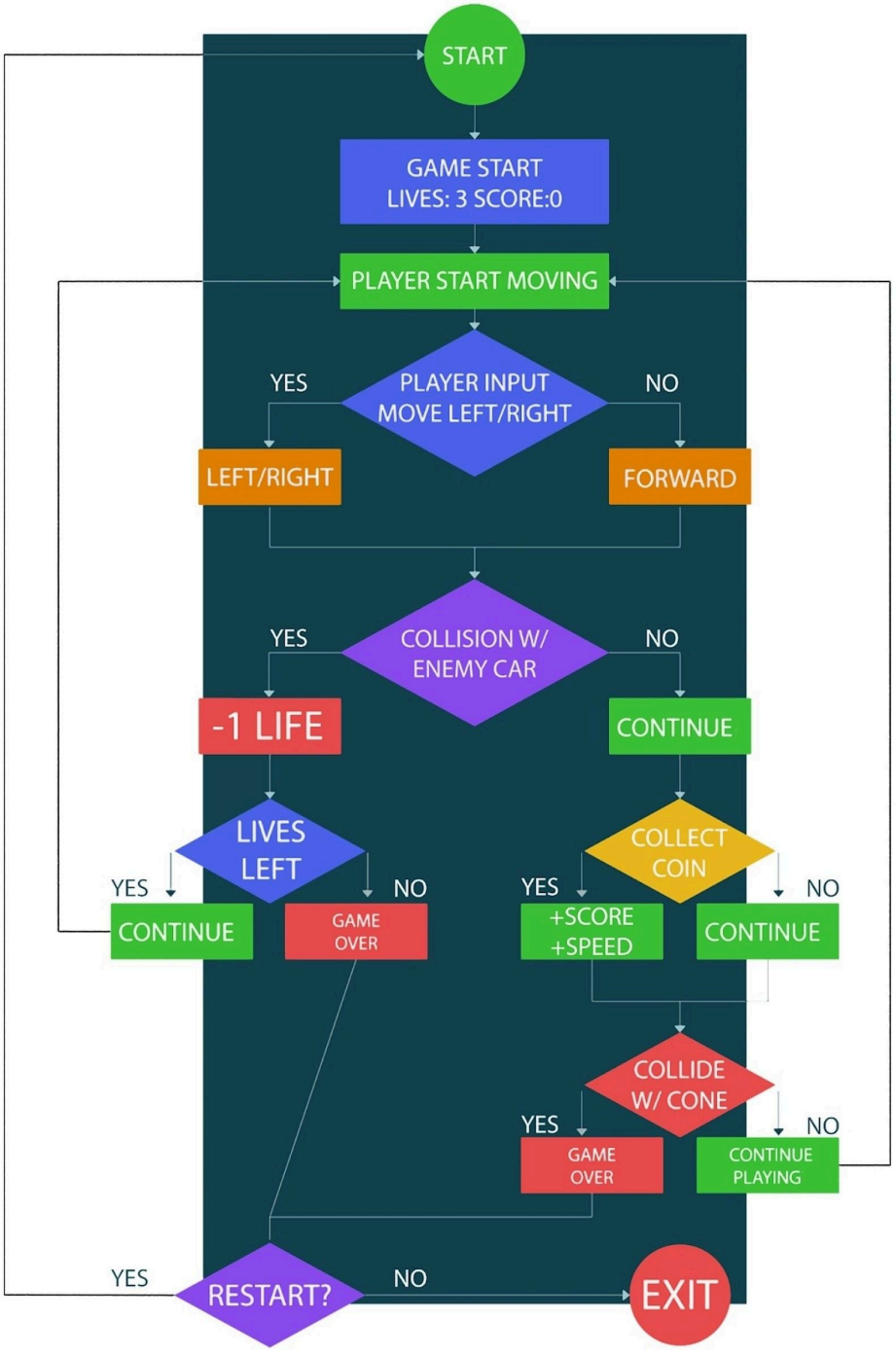
hence very short-lived in their gaming experience and making the player bored.

Car Coin Craze addresses this issue by including racing game, Scoring mechanism, intelligent opponents(AI baddies car and cones), and a difficult level that changes all the time. The game speed rises over time and the race is different each time, which will always attract players bored with repetitive games. It creates a new concept out of the competitive world, and thus different from most of the existing products.

DESIGN LAYOUT-



FLOWCHART-



ALGORITHM :-

Step 1: Start

Step 2: Begin the game
Lives=3 and Score =0

Step 3: Player start moving

Step 4: Player Input

if(player press left/right key) then:

- Move player according to the input.

else:

- Continue straight.

Step 5: AI Car

if(Collision with AI Baddies car):

- Reduce life by 1.

Lives > 0?

Yes → Continue the game.

No → "Game Over."

else:

- Continue the game.

Step 6: Traffic Cone

if(Car collide with cone):

- End the game and display "Game Over."

Else:

- Continue.

Step 7: Coin Collection

if(Player Collects Coin):

-Increase score.

else:

- Continue the game.

Step 8: Update Score
if(Score > Top Score):

- Update Top Score.

Else:

- Continue.

Step 9: Ask Player to Restart or exit

if(player select “yes” to restart) then:

-Go back to step 3

else(player select “No”):
-Exit the game

SPECIFICATIONS -

Key Features:

1.Play space: The window in which the game takes place, appealing but not distracting

2.Player Car: The player controls a car that can move left, right, up, and down using the arrow keys (or 'W', 'A', 'S', 'D').

3.AI Baddies: Other cars (baddies) move from the top to the bottom of the screen and attempt to collide with the player. The speed of these cars varies based on the player's score and remaining lives.

4.Traffic Cones: Stationary obstacles (traffic cones) are randomly generated on the screen. Players must avoid hitting these cones.

5.Coin Collection: Collectible coins appear randomly on the screen. When the player’s car collides with a coin, the score increases.

6.Background Feature: A background image is displayed on the game screen, enhancing the visual appeal of the game.

7.Collision Detection:

#AI Baddie Collision: If the player’s car collides with a baddie, the game ends.

Cone Collision: If the player hits a cone, a sound effect plays, and their speed is temporarily reduced.

Coin Collision: If the player collects a coin, it disappears, and the score increases.

Scoring System: The player’s score increases as time progresses and from collecting coins, and it's displayed on the screen.

8.Top Score Saving: The game saves the top score in a file (save.dat). If the player exceeds this score, it updates the file.

- ❖ Input/Output

1. Player Car Movement

Input: Arrow keys (Up, Down, Left, Right) or W, A, S, D keys.

Output: Player's car moves left, right, up, or down within screen boundaries.

Collision Detection

2.Baddie Collision:

Input: Collision between the player’s car and a baddie.

Output: Reduce the life by 1

If (life =0) – Ends the game and triggers a game-over screen

3.Cone Collision:

Input: Collision between the player’s car and a traffic cone.

Output: Plays a sound effect.

Ends the game and display game-over screen

4.Coin Collision:

Input: Collision between the player’s car and a coin.

Output: Coin disappears.

Score increases.

Optional sound effect on collection.

5. Scoring System

Input: Time progression (automatic increase).

Coin collection (triggered by player collision with coins).

Output: Time-based Score: The score increases continuously as time progresses.

Coin-based Score: Each collected coin adds a fixed amount to the score (e.g., +100 points).

Score Display: The current score is displayed on the screen during gameplay.

6. Top Score Saving

Input: End of game event.

Player's final score.

Output: Display: The top score is displayed on the game-over screen or during gameplay, depending on design choice.

7. Game Over Condition

Input: Collision between player's car and a cone.

Input: If players life == 0

Output: The game ends, showing a game-over screen with the final score and top score.

USE and TEST CASE:

- **Use/Test case 1: Start the game**

  Expected Input: Start on click button

  Expected output: The game should start

- **Use/Test case 2: Player Movement**

  - **Verify that the player car moves left, right, up, and down correctly and doesn't exceed window boundaries.**

  Expected Input: Arrow key presses LEFT, RIGHT, UP, DOWN

  Expected output: The player car should move in the specified direction

- **Use/Test case 3: Coin Collection**

  - **Ensure that the player collects the coin when it intersects with the player car**

Expected Input: Coin and player car positions, triggered by moving the player to intersect with the coin

Expected Output: When the player car collides with the coin, the coin should disappear from the screen.

The player's score should increase by 1 upon collecting the coin

- **Use/Test case 4: Speed Increase**
    - ➢ **Validate that the player's speed increases after collecting coins**

Expected Input: Player collects coins.

Expected Output: Speed of the player car increases and is reflected in the game.

- **Use/Test case 5: AI Collision**
    - ➢ **If a player's car collides with a baddie, life is decreased by 1.**

Expected Input: Position of player car and AI cars.

Expected Output: Life should decreased by 1

There are total 3 lives

If(life > 0): game continues

If(life = 0): game over

- **Use/Test case 6: Cone Collision**
    - ➢ **Traffic cones are randomly generated on the screen. Player must avoid hitting these cone**

Expected Input: Player should avoid hitting these cone

Expected Output: Game should end