

SSN College of Engineering, Kalavakkam
Department of Computer Science and Engineering

UGE3188 – Problem Solving and Programming using Python

Project 4: Fruit Catcher Game [CO1, CO2, CO3, CO4, CO5 - K6]

Catch falling fruits while avoiding bombs using Pygame0. Score points by catching fruits, but lose points for bombs. The game has multiple levels with increasing difficulty. Follow the specifications given below to design and develop the game.

Specifications:

1. Start Screen:

- o Display the title "Fruit Catcher" and a start button.
- o Upon pressing the start button, the game begins with fruits and bombs falling from the top of the screen.

2. Gameplay:

- o The player controls a basket at the bottom of the screen using arrow keys.
- o Fruits (such as apples, bananas, strawberries) and bombs fall randomly from the top of the screen.
- o Catching a fruit awards the player 10 points. Catching a bomb deducts 5 points.
- o Track and display the score in real-time at the top of the screen.
- o **Timer:** Set a timer for 1 minute. The player aims to catch as many fruits as possible before the timer runs out.

3. Level 1: Catch Specific Fruit

- o Display a specific target fruit to catch (e.g., "Catch only strawberries").
- o Catching the target fruit awards 10 points, but catching other fruits awards only 5 points. Catching bombs deducts 5 points.
- o If the timer expires or a target score (e.g., 100 points) is reached, the level ends, displaying the score.

4. Level 2: Avoid Bombs and Catch Fruits

- o Introduce faster falling bombs that deduct 10 points if caught.
- o Fruits also fall faster, making it more challenging.
- o Continue tracking score and update the display after each fruit or bomb is caught.

- o The level ends if the timer expires or a target score (e.g., 150 points) is reached.

5. End Screen:

- o After completing both levels, display the total score and the total time taken.
- o Store the highest score across sessions. When a new game starts, display the highest score achieved so far.

Modules to Implement:

1. Basket_Control:

- o Handle the left and right movement of the basket based on arrow key input.
- o Ensure the basket doesn't move out of screen boundaries.

2. Fruit_Bomb_Generator:

- o Randomly generate fruits and bombs at different positions at the top of the screen.
- o Increase the frequency and speed of falling objects in Level 2.

3. Collision_Detection:

- o Check if the basket collides with any falling fruit or bomb.
- o Award points for catching fruits, but deduct points for catching bombs.

4. Display_Score:

- o Continuously update and display the score at the top of the screen.
- o Show the score at the end of each level and at the end of the game.

5. Level1_Target_Fruit:

- o Identify a target fruit for the player to catch in Level 1.
- o Award extra points for catching the target fruit and display the target fruit at the top of the screen.

6. Level2_Speed_Increase:

- o Increase the speed of both fruits and bombs for Level 2 to make it more challenging.
- o Deduct higher points for bombs in Level 2.

7. Game_Timer:

- o Track the time left in each level. Display a countdown timer on the screen.
- o End the level when the timer runs out, and display the final score.

8. End_Screen:

- o At the end of the game, display the total score for both levels and the total time taken.
- o Display the maximum score achieved across sessions on the main start screen.