

Project Proposal

Title

2D Catch the Falling Objects Game Using Pygame

1. Introduction

Games are an important part of interactive software development. 2D games are simple to understand and easy to develop for beginners. This project focuses on developing a simple 2D game using Python and the Pygame library. The game helps beginners understand basic game development concepts such as movement, collision detection, and scoring.

2. Objectives

- To design and develop a simple 2D game using Pygame
- To understand basic game mechanics such as movement and collision
- To gain hands-on experience with Python game development

3. Scope of the Project

The project is limited to a single-player 2D game. The player controls a basket to catch falling objects. The game ends when an object is missed. Future enhancements may include multiple levels, sounds, and improved graphics.

4. Tools and Technologies Used

Programming Language: Python

Game Library: Pygame

IDE: VS Code

Operating System: Windows

5. Expected Outcome

The project will result in a fully functional 2D game where the player can move left and right to catch falling objects. The game will display the score and show a game-over screen when the object is missed.

6. Methodology

1. First, Python and the Pygame library are installed on the system.
2. Then, the basic layout and logic of the 2D game are designed.
3. After that, player movement and falling object movement are implemented using keyboard controls.
4. Collision detection and a scoring system are added to increase interactivity.
5. Finally, the game is tested and debugged to remove errors and improve performance.

7. Applications

- This project helps in learning the basic concepts of 2D game development using Python.
- It can be used for educational demonstrations to explain how games work.
- This project is suitable for beginners who want to create simple Python-based games.
- It can also be used as an interactive learning tool to understand programming logic in a fun way.

8. Conclusion

This project demonstrates how Python and Pygame can be used to develop a simple 2D game. It provides a strong foundation for beginners to explore more advanced game development concepts in the future.