PyGame Snake

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25. května 2024

1 Introduction

The goal of this semestral project was to develop a clone of Snake game using Python and the Pygame library, but with some additional features. The game now has obstacle generation, high score tracking and two difficulty levels. The game should be easily configurable on any laptop device and provide a user-friendly interface.

2 Methods and Algorithms

To realize the game, I used the following tools and methods:

Pygame Library: This library was utilized for game development, including rendering user interface, handling events, managing the game loop.

Object-Oriented Programming: Key game components such as Snake, Food, and Obstacle were implemented as classes to ensure modularity and reusability.

Randomization: Dynamic generation of food and obstacles was achieved through randomization.

High Score Management: File I/O operations were implemented to save and load high scores, enabling persistent score tracking across game sessions.

Background and Music Management: Implemented file handling to load different background images and music tracks.

3 Results

The project successfully resulted in the following:

A playable Snake game with dynamic obstacle generation and responsive controls.

High scores are saved to a file and displayed at the end of each game session. Implemented two levels of difficulty that can be selected from the start screen.

Developed a user-friendly interface with options to start the game, view settings, and quit.

The game loads different background images based on user settings, enhancing visual appeal.

Different music tracks/effects are played based on the game state.

4 Conclusion

Developing this project provided valuable insights into the complexities involved in creating an application. The process of integrating dynamic obstacles and custom backgrounds presented some challenges, as well as handling snake movement correctly (which was the first problem, because pressing random keys could result in game ending). The final product is a functional Snake game with features that enhance its classic gameplay.

There are many possibilities for further development. Adding more bonus items, refining animations, and potentially introducing a multiplayer mode could make the game even more engaging.

Reference

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