Implementation of Parking Panic game

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1 Introduction

The Parking Panic project is a puzzle game inspired by a crowded parking lot. The objective of the game is to strategically move cars within a parking lot to clear a path for the target car to exit.

As part of this work, we implemented this game in Python. The exact inspiration is from the online game [1] and also the board game [2]. The game was implemented using the **pygame** module.

2 Project Structure

The project follows a modular structure with the main components including:

- `parking_panic.py`: The entry point of the game, handling the game loop and user input.
- `engine.py`: A custom module that contains the game logic, such as the parking lot grid, car movements, and victory conditions.
- `pygame_module.py`: A custom module containing functions specific to the Parking Panic game.
- `intro_screen.py`: A custom module containing functions related to the game intro screen and level selection.

3 Challenges and Solutions

Implementing a game like "Parking Panic" comes with several challenges. These include designing the game logic, managing the parking lot grid, handling user input for car movements, implementing graphics and user interface elements, and thorough testing to ensure a polished and bug-free experience. It should be noted that the individual vehicle layouts were supplied for this task, so there was no need to design them and test whether they were solvable.

4 GUI

The GUI of the game can be seen on Figure 1. As mentioned the goal of the game is to free a car, in this case a police car, so that it can leave the parking lot. At the top of the screen you can see the step counter and the best record so far for the level.

Figure 1: Preview of Parking Panic GUI

5 Conclusion

Although the Parking Panic project is functional, there are several areas for potential future improvements, including:

- Adding more levels with increasing complexity to provide a longer gameplay experience.
- Enhancing the game engine to continuous moves.

References

[1] Coolmath Games. Parking panic. `https://www.coolmathgames.com/0-parking-panic`. Accessed: 28-5-2023.

[2] ThinkFun. Rush hour. `https://www.thinkfun.com/products/rush-hour/`. Accessed: 28-5-2023.