Project Proposal

Communication

Our communication plan is to use Discord as our primary way to communicate with each other. As of now, we are just starting to discuss each other's assignments for the program. Marcus is the leader for this project. He is experienced in Pygame, which will help us for our final project. Quang set up the Github repository for the project. We will eventually set up times to meet in discord to have discussions.

Project Description

We are developing a Space Invader game for anyone to play and want to ensure a good user experience.

System's Scope

Essential Features

- Player Control: The player will control a spaceship that can move left and right across the screen.
- Shooting: The player can fire projectiles upward to destroy descending aliens.
- Alien Behavior: The aliens will move horizontally and descend gradually, with increasing speed as the game progresses.
- Collision Detection: The game will detect when a projectile hits an alien or when an alien reaches the player's ship.
- Scoring System: Points will be awarded for each alien destroyed.
- Game Over and Victory: The game ends when either the player loses (aliens reach the bottom) or wins (all aliens are destroyed).

Additional Features (for future expansion)

- Power-ups: Introduce items like shields or special weapons.
- Sound Effects: Add audio for actions like shooting and alien destruction.
- Levels: Implement multiple levels, each with increasing difficulty.
- Variety in Aliens: Add different alien types with unique behaviors.
- Main Menu and Restart Option: A simple menu to start and restart the game.

Technologies

- Programming Language
    - Python
- Libraries
    - **Pygame:** A popular library in Python for game development that will be used to handle graphics, sound, and user input.
    - Alternatives could include Tkinter or Arcade, but Pygame is likely the most straightforward for this project.

System's Purpose

The objective of this project is to recreate the classic Space Invaders game using Python. The main goals are:

- **Learning Game Development:** This project will provide hands-on experience in building a game from scratch, focusing on key mechanics like player movement, shooting, and collision detection.
- **Improving Programming Skills:** It will help reinforce key programming concepts, such as object-oriented design, handling graphics, and managing game states.
- **Portfolio Project:** Completing this game will provide a solid project to showcase programming skills, particularly in game development.
- **For Fun:** Recreating a classic game can be an enjoyable way to practice coding while working on a nostalgic project.

Project Collaboration, Management, and Roles

Are code repository is on GitHub at the following address:

- **https://github.com/qnguyen5IT/SDEV_220_Final_Project.git**

Project Management and Roles

We will utilize Trello board for keeping track of tasks.

- https://trello.com/invite/b/66e0f6a1f9256160e192afba/ATTIa8d3165a65407239545c23b4305b727680B5DFEA/sdev220finalproject

Team Members Roles and Responsibilities

Kanban boards are a nice way to see what work needs to be done on a project. For this project we will have 3 boards, open, working, and closed. Open is where things that need to be worked on go, also feature requests can be put here as well as issues. The

working board is when someone is currently working on that part of the project. Meaning they have that part of the project covered and are currently working on it. The last board is closed; this is where completed tasks and denied feature requests go.

It looks like currently there are 4 active members apart of this project. The project manager is Marcus. The project manager seems to be the most experienced with programming and has been writing code since 2017. He will break up this project into small manageable tasks for all of the participants and will monitor everyone's progress making sure due dates are met and will take everyone’s skills into consideration. If anyone needs help the project manager will help them.