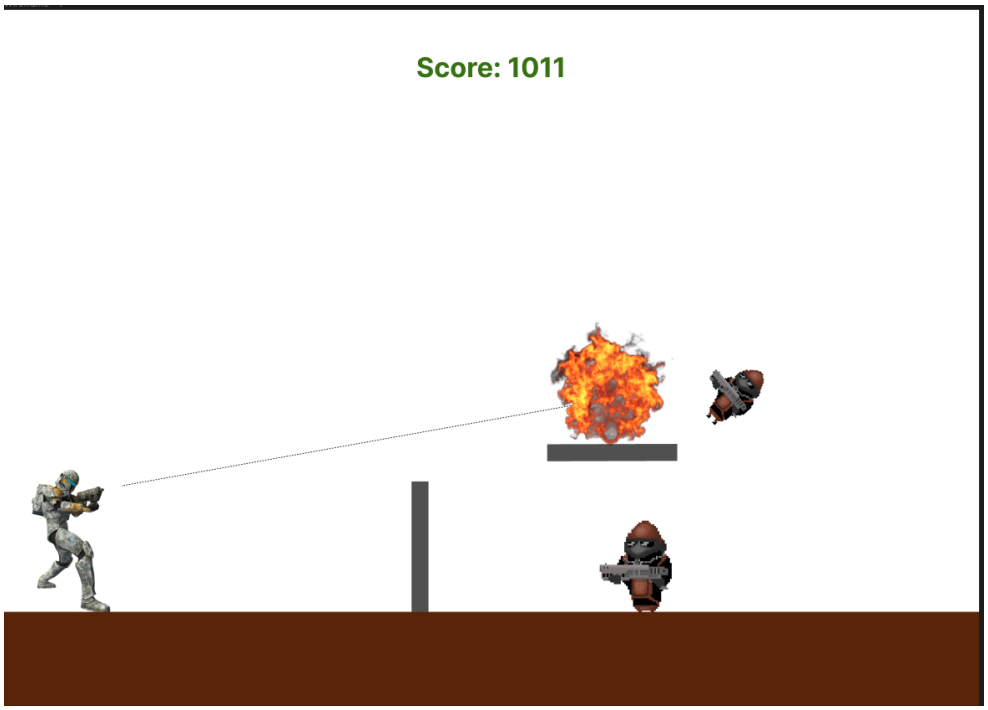
Project Proposal

Part 1: Game Design

This project will develop a 2D action shooter game. The story arc of the game will incorporate essential aspects of the hero's journey template. A unique gimmick of this game would be the ability to teleport at the coordinates of a special bullet. This bullet will have a cooldown period after being used.



Movement: the movement of our hero will be done using a combination of keyboard and mouse.
Combat: The goal of the game is to defeat a variety of monsters on the way to the final boss. The collision of player's bullets onto the monster sprites will cause reduction of health or termination of monsters.
Inventory: The inventory consists of an explosive weapon and a gun. Switching between these will be done using number keys.
Background/ Scene: This game will have a predefined map with some randomly generated objects. The update of the background/scene will depend on the player movement and game events.
Collectibles: Teleportation bullet, bombs, and rapid fire gun.
Upgrades: Hit-point increase, temporary immunity, Wings?
Power-ups: Ghost mode, Giant-mode, and tank mode.

Part 2: Development Design

We will be using an MVC architecture. We will define classes for the various game entities. Some of these classes are listed below. This list will expand as the need arises.

Modules: Monsters, Boss, Power-ups, Player, Gun, Explosive, Map, Score, Bullets, Story-Transcript

Some of these modules have a parent-child relationship. For example: The gun object is what gives rise to and influences the bullet object. Depending on the state of the gun, different property bullets are fired.
Player object will be influenced by interactions with power-up objects and collisions with monsters or boss objects.
The Story-transcript is a stand-alone object that depends on different game events. For example: Game beginning and game end.
Player will interact with the game using the:
1. Arrow keys for the player movement.
2. Mouse pointer and clicks for gun fire and explosives launching.
3. The mouse pointer will also be used for starting or navigating the game options.
Different monsters/ enemies must behave in different ways. I plan on tackling this by using pygame sprite group method and also an object oriented approach.

The rendering of the map is also a potential challenge. The minimal viable collusion to this is to just have a map with simple obstacle objects placed at a semi random frequency.

Part 3: Division of Labor

All work will be done by myself.

Part 4: Timeline

You will have 3 milestones to complete before submitting your final game project. The timeline should include tasks and deadlines for each milestone. Use your Game and Development Design sections to help build this timeline. Assign a group member to each task according to their roles and responsibilities.
Milestone 1: March 15

Milestone tasks: Game rules plus player and bullet/explosives mechanics should be done
Deadline: March 14

Updated Game Document

Milestone 2: March 29

Milestone tasks: Finish generic monster mechanics and design.

Deadline: March 28

Updated Game Document

Milestone 3: April 12

Milestone tasks: Finish collision and score count implementation.

Deadline: April 11

Updated Game Document

Final Game Submission: April 26

Completed and polished game

Completed Game Document game

Final Exam Presentation & Submission: May 4

Presentation materials (e.g. slides, videos)

Note: It is important to allocate enough time for debugging and playtesting before the final submission date.