



Module: Game Design

Assignment: Game design document

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1. Overview

Space Wars is a 2D space shooter in which players control a spaceship to defeat waves of enemies in outer space. After each level, players are rewarded with resources that they can use to upgrade their ship's capabilities ([Appendix here](#)). The game features two primary modes: Gameplay and Upgrade.

2. Core Gameplay

2.1 Gameplay Mode:

In this mode, the player navigates a spaceship and fights against waves of enemies. By destroying enemies, players earn points, which can be used to enhance the spaceship's attributes. The goal is to progress through the five levels.

2.2 Upgrade Mode:

After completing a level, players are taken to the Upgrade Mode, where they can spend their earned points to upgrade their ship's weapons and health. Players can choose from a set of upgrade options to strengthen their ship in preparation for the next set of enemies.

3. Screens and Interaction Modes

3.1 Gameplay Screen

- Objective: The player must survive waves of enemies while avoiding damage and destroying as many enemies as possible.

3.2 Controls:

- Movement: Arrow keys or WASD keys to move the spaceship.
- Shooting: The Spacebar or left click is used to fire the ship's weapon.
- Pause: Pressing the Escape key will pause the game.

3.3 Gameplay Mechanics:

- Wave System: Players must defeat several waves of enemies, each wave becoming progressively more difficult.
- Enemies: There will be different types of enemies that shoot at the player. Some enemies will be stronger or have special abilities.

3.4 Upgrade Screen

- Objective: The player can use the points earned in the Gameplay mode to upgrade their spaceship.
- Upgrade Options: Players can choose from different upgrades, such as improving the ship's weapons armour.
- Return to Gameplay: Once the upgrades are selected, players can return to the gameplay mode to continue progressing.

4. Progression

4.1 Levels:

- The game consists of 5 levels, each with a series of waves. The player must defeat all waves in a level before moving on to the next.

4.2 Enemies:

- Basic Fighters: These enemies are weak but numerous. They shoot basic projectiles at the player.
- Heavy Ships: These enemies have more health and stronger attacks but move slower.

5. Technical Details

- Graphics: The game will use SFML to handle 2D graphics and animations.
- Audio: SFML will also be used for sound management, including background music and sound effects such as shooting and explosions.
- Programming Language: The game will be programmed in C++ using the SFML library to manage the graphics, input, and audio elements.

6. Art and Animation

- Sprites will be made using photoshop.
- Spaceship Animations: Simple sprites will be created to make the spaceship's movement, shooting, and taking damage.
- Enemy Animations: Enemies will have basic animations to show movement, firing, and being destroyed.
- Explosions: When enemies are destroyed, pixelated explosion animations will be triggered.