Development Log: Preproduction Phase

Date: 11/11

Initial Game Concept
- Game Type: Space Shooter
-Inspiration: Classic games like Space Invaders and modern takes on the genre.

Game Design Preliminary Thoughts
- The objective is to create an engaging space shooter where players fend off waves of alien ships.
- This game will include a player that tries to dodge against the shooting attacks from alien shapes, they will also be able to shoot them to earn points
- I will include some kind of ability for the user that uses teleportation in order to help dodging enemy bullets

Aesthetic Goals
Goal 1: Growth and Mastery
  - Description: I want the player to feel a sense of growth and empowerment, becoming more skilled at navigating and shooting as they progress.
  - Success Indicators: Players are engaging with higher difficulty levels, increasing scores show a growth in skill
  - Failure Indicators* Players feel the game is too hard from the start and want to give up really early in the game.

Goal 2: Tension and Release
  - Description: The game should create moments of high tension followed by relief when players survive a wave/level or defeat a tough enemy.
  - Success Indicators: Players have a high engagement level, shown by quick reactions to on-screen events and expressions of relief or joy after surviving challenges.
  - Failure Indicators: Monotonous gameplay or lack of engagement, indicated by short play sessions or feedback that the game is repetitive.

Core Mechanics
- Players control a spaceship that can move horizontally at the bottom of the screen.
- The primary action is shooting at descending aliens and dodge the bullets that the enemies are shooting towards the player so that the player does not die
- Secondary mechanics include the teleportation ability that allows and assist the user in surviving

Core Loop
- The core gameplay loop will involve maneuvering to avoid enemy fire, targeting enemies, shooting them down

- Relationship to Aesthetic Goals:
  - Empowerment and Mastery: The increasing difficulty of waves and the introduction of new enemy types will require players to learn and master the game mechanics.
  - Tension and Release: Narrowly avoiding enemy fire and defeating tough enemies will offer the tension-release cycle we aim for.

Production Phase (TIMELINE)
Date: 11/11

Implemented Player Movement:
- Players can move horizontally and vertically within screen bounds using arrow keys.
- Added code to prevent the player from moving outside the viewable game area.

Date: 11/11

Implemented Shooting Mechanics:
- Players can shoot by pressing the space key, spawning a projectile moving upwards.
- Ensured projectiles are destroyed on collision or when leaving the screen.
- Enemy can shoot a bullet with a time frame, moves in the direction of the player, which can kill the player

Error Occured:
- When enemy is below the player, shooting from above gave a weird visual, so I changed so the that the user will only be in the bottom and can only move horizontally

Date: 11/12

Implemented Player Lives and Respawn Mechanics:
- Players start with three lives.
- Upon loss of life, the player respawns at the screen's bottom center.

Problem:
- When player respawns, there is a change that the player might get hit again immediately, so I added a 3 second invincibility

Date: 11/12

Implemented Special Ability - 'Body' Leaving and Teleportation:
- Added ability for the player to press 'F' to drop a 'body' and teleport back to it, enhancing strategic depth.

Date: 11/13

Implemented higher levels

- After each 15 seconds of survival, it levels up, meaning the enemies become stronger and faster, which will make the game harder and the user more interactive. Especially for level 5, the enemies go a little crazy

Implemented Sound files

- Added each sound file to each ability or crucial event

Error occurred- when I destroy the object after playing a sound, the sound will not play – to fix this, I instead added the sound to the game controller and not the individual game objects

Date: 11/13

Testing and Iteration:
Bug Fixes and Gameplay Tuning:
- Resolved issues with enemy spawn rates.
- Adjusted player hitbox and collision detection.
- Refined the enemy movement patterns to better align with aesthetic goals.
- Conducted playtesting sessions to gather feedback on the core gameplay loop.

PostMortem:

Original Objectives:
- To create a Space Invaders-inspired game with distinct gameplay mechanics.
- To implement player-controlled movement and shooting within a bounded area.
- To introduce a non-upgradable player character who could shoot and navigate to avoid and destroy enemies.

Revised Goals:
- To add strategic depth through a "leave body" and "teleport back" mechanic.
- To incorporate invincibility phases to enhance gameplay balance.
- To escalate difficulty over time by increasing enemy spawn and shoot rates after a certain period.

Accomplishments:
- Successfully implemented player movement, boundary checking, and shooting mechanics.
- Introduced the special abilities for the player to leave a "body" behind and to teleport back to it as a strategic element.
- Integrated a scoring system based on enemy defeats and object interactions.
- Added dynamic difficulty that escalates the challenge as time progresses.

What Went Right:
- The implementation of core mechanics was smooth and efficient, providing a solid gameplay foundation.
- The special abilities added unique elements that differentiated the game from traditional Space Invaders gameplay.
- Difficulty adjustment over time was successful in increasing the game's challenge.

What Went Wrong:
- Encountered challenges with making the player invincible after being hit due to issues with timing and state management.
- Initial difficulty balancing required several iterations to get right, particularly concerning the integration of new mechanics.

What I wish I knew before
- I wish I had a better understanding of Unity's timing functions and how to manipulate Time.time for individual scene management from the start.
- An initial underestimation of the complexity involved in balancing difficulty progression led to some rework.
- A little more about the idea that if an object is destroyed too fast, the sound won’t be able to play

Lessons Learned:
- Gained a deeper understanding of Unity's game loop and how to manage game state across different game phases.
- Learned to implement and fine-tune difficulty progression to keep the game engaging over longer play sessions.
- The importance of time and the ordering of executions that could affect how differently a game object or sound would react
- Improved knowledge on the importance of clear planning and the allowance for flexibility in game design to adapt to player feedback and testing outcomes.