Project report – Journey to the sun roguelike

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# Introduction

This report will serve as the primary destination for everything related to this project. Its purpose will be to provide information for the progress of the project throughout its lifecycle. This report will also discuss the requirements for the project and analyse the different features and computational techniques that will be required before even beginning development. This will take up a large proportion of the document, as it is important that the requirements have been fully analysed and investigated, so that they are clear, unambiguous, and able to be easily implemented into the solution when development begins, with minimal issues and delays due to unforeseen events that could have been mitigated had more time been spent planning.

Once development has begun, we will be using this report to document the process from start to finish. This may come in the form of screenshots taken from the solution itself, with descriptions on the purpose of the code shown, and information on any issues that may have been encountered when writing it and how they were resolved. This will be beneficial as if similar issues are encountered in the future, we will be able to reference this document and come to a fix faster as we will know the process required to fix it. It will also be useful to show the stakeholders how the project is developing to keep them informed and have something to reference when discussing future improvements or testing.

# Analysis

This section will be where the base requirements and functionality of the project is scoped. We will have conversations with stakeholders to gather the requirements for the application and create a requirements specification to organise these requirements into a concise and readable format.

We will also discuss the project itself, and what we aim to accomplish through its creation, and what will be gained from it by its users.

## The Problem

This game will be a roguelike twin-stick shooter game, where the player will complete levels on each of the planets in the solar system, starting on Neptune, and ending the game in the final level which will take place on the Sun. Each level will start the player with a basic gun, firing projectiles at nearby enemies. Items that power up the player can be found throughout the level in randomised locations that may give the player a better weapon, or improve their stats. At the end of each level, the player will collect an armour piece that will be able to absorb the energy of the sun, that will prevent it from becoming a supernova. All armour pieces will have to be collected from each planet in order to achieve this and beat the game. To my knowledge, this game concept has not been created before, and for that reason I believe it will be an interesting and unique project that has a solid selling point.

## Computational Methods

The core of this game will be the different planets that the player will explore, and the maps that will be used to represent them. In order to create these levels procedurally, while still keeping correct theming, object-oriented programming will be used. This will allow us to create classes for important things such as enemies, weapon archetypes, and the maps themselves that will be generated based on a class containing the generic features and functions for each level. This will result in code that is much easier to read, and be more expandable to make the creation of new levels much simpler and easier to implement into the game while keeping them unique and allowing the developers to add new content to the levels to make them different and unique to each other.

Other methods, such as abstraction, may be used during the development of the game, and can be used in cases such as the spawning of enemies. It may be beneficial, for initial testing, to create code that allows for entities to spawn outside of a given radius, at random intervals, and in random spaces. This will get the core functionality of the enemy spawning system in place, which can then be later expanded upon to include the sprites and AI that will be used to make the enemies move, follow, and attack the player. The method of abstraction can be used throughout the project to ensure that all systems implemented work on a purely functional level, such as having a sprite move around a plane with the WASD keys, and colliding with a wall to prevent further movement in that direction. This will be able to be expanded upon by implementing the player sprite, along with the required perspectives for the player character, and creating walls around the player to define the play-space. By abstracting these functions, we can be sure that the systems work as intended before fully implementing them into the game.

## Stakeholders

The stakeholders of this project are the people who we must create the game in mind for. We will base all requirements off of their feedback, and must ensure that throughout development, that they are being catered for in the content that is added to the game. For example, if one of the stakeholders believes that the projectiles fired by the enemies are too fast, we must conduct testing on the speed, and possibly allow the play-testers to run through some levels with projectile speeds adjusted to different speeds, from which they can then help us to finetune the gunplay of the game to be as fair as possible while still keeping the player engaged, and with a certain level of challenge. The stakeholders for this game will be my classmates, as they are a part of the key demographic for this game, as well as my future colleague, who will provide aid and feedback on the technical aspects of the project, as their primary requirements for the project are that is runs optimally on all hardware, so that it remains accessible to all players, regardless of their PC specifications.

# Bibliography