

Capstone Project

Software Requirements Specification

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1 Introduction

1.1 Purpose: Mission Statement

The goal of our team was to bring the excitement and uncertainty of distant galaxies to a browser window with a fast-paced arcade style game containing infinitely generating obstacles, enemies, and adventure.

1.2 Scope

The capstone project completed by Group 4, herein referred to as “The System,” shall consist software, audio, and graphical assets combined to provide an entertaining gaming experience harkening back to traditional arcade titles such as Galaga and Space Invaders, but with some modern twists.

1.3 Definitions, Acronyms, and Abbreviations

1.3.1 Frame Rate

The rate at which consecutive images called “frames” are displayed while rendering film or computer graphics.

1.3.2 Game Engine

A framework for game development that provides inherent support for various common components of a game such as physics, animation, audio, and lighting.

1.3.3 Side Scroller

A type of game in which a side-view camera angle is used to view a character travelling from left to right on the screen, involving movement in one continuous direction in many cases.

1.4 References

1.4.1 https://en.wikipedia.org/wiki/Frame_rate

1.4.2 <https://unity3d.com/what-is-a-game-engine>

1.4.3 <https://www.techopedia.com/definition/27153/side-scroller>

1.5 Overview

The following document outlines the software requirements and specifications for The System, including the functional, nonfunctional, domain, hazard, and system requirements. Requirements are organized into sections based on their applicability to more general goals such as resources used on the player’s end, the features incorporated within the game, and how the game performs under appropriate conditions.

2 Overall Description

2.1 Product Perspective

test

2.2 Product Functions

test

2.3 User Characteristics

test

2.4 Constraints

test

2.5 Assumptions and Dependencies

test

3 User/Stakeholder Profiles

Stakeholder	Interests	Constraints
test	test	test
test	test	test

4 Core System Requirements

This section lists all of the core functional requirements for the System.

4.1 Storage Requirements

4.1.1 The System shall maintain all persistent data within a database of JSON objects handled by the IndexedDB API.

4.1.2 The System shall not exceed 1MB of persistent data per browser.

4.2 Networking Requirements

4.2.1 The System shall be hosted in a web-based environment.

4.2.2 The System shall limit all network interactions to the use of an in-game leaderboard.

4.2.3 The System shall notify the user of any inability to fetch or submit scores to the leaderboard.

4.2.4 The System shall only attempt network interactions upon the user's request.

5 Feature Requirements

This section lists all of the features to be implemented in the System.

5.1 General Features

5.1.1 The System shall...

6 Performance Requirements

This sections lists all performance requirements laid out for the System.

6.1 Frame Rate Requirements

6.1.1 The System shall at no time include spikes in frame rate that dip below 15 FPS.

6.1.2 The System shall limit the number of average performance spikes to a maximum of 1 spike per second.

7 Nonfunctional Requirements

This section lists the nonfunctional requirements pertaining to the System.

7.1 Software-Related

7.1.1 The System shall be designed using the Unity Game Engine.

7.1.2 The System shall be exported to the WebGL platform using Unity's included build options.

7.2 Graphics & Visuals

7.2.1 The System shall use a native resolution of 1400x700 pixels.

7.2.2 The System shall offer fullscreen support for a resolution of 1920x1080 pixels.

7.2.2.1 Any 16:9 aspect ratio display should also be supported as a result, at the possible expense of some minor graphical defects such as blurring at larger resolutions.

7.2.3 The System shall only use the .png format for images.

7.2.4 The System shall only use the .fbx format for 3D models.

7.3 Regulatory

7.3.1 The System shall...