

SE 3XA3: Development Plan Mario

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October 11, 2016

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Table 1: **Revision History**

| Date | Version | Notes |
|-----------------|---------|--|
| October 6, 2016 | 1.0 | Created Document, rough draft of section 1 |
| Date 2 | 1.1 | Notes |

This document describes the requirements for Mari0. The template for the Software Requirements Specification (SRS) is a subset of the Volere template (?).

1 Project Drivers

1.1 The Purpose of the Project

The purpose of this project is to recreate the game, Mari0, to allow the players to entertain themselves and alleviate their boredom. Mari0 is a combination of Super Mario Bros. and Portal, challenging a player's platforming abilities and their puzzle solving skills.

1.2 The Stakeholders

1.2.1 The Client

The client for the Mari0 project is the game publisher.

1.2.2 The Customers

The customers for this project are people interested in platforming and/or puzzle games.

1.2.3 Other Stakeholders

The other stakeholders for Mari0 are the game's developers and designers.

1.3 Mandated Constraints

The constraints as mandated by our client are as follows:

- Have each deliverable finished by the deadlines given in the course outline
- The game's physics will be handled by the Unity Game engine
- The product should be runnable on all operate systems

1.4 Naming Conventions and Terminology

| Term | Definition |
|----------------|---|
| A.I. | Artificial Intelligence |
| Portals | Two connected portals that allow characters and projectiles to enter one and exit through the other, whilst mainting physial properties such as velocity and acceleration |
| Mario | The character that the player portrays |
| Goomba | Enemy character that is defeated after the player stomps on the top of its head |
| Lives | The amount of times the player can die before game over |
| Question Block | Blocks found that when hit give the player coins or power ups |
| Fire Flower | Type of power up, gives Mario the ability to throw fireballs |
| Super Mushroom | Type of power up, lets Mario take an extra hit from enemies |
| Koopa Troopa | Enemy character that is defeated after the player stomps on the top of its head; leaves behind a shell that can be used as a projectile |

1.5 Relevant Facts and Assumptions

User characteristics should go under assumptions.

2 Functional Requirements

2.1 The Scope of the Work and the Product

2.1.1 The Context of the Work

2.1.2 Work Partitioning

2.1.3 Individual Product Use Cases

2.2 Functional Requirements

3 Non-functional Requirements

3.1 Look and Feel Requirements

3.2 Usability and Humanity Requirements

3.3 Performance Requirements

3.4 Operational and Environmental Requirements

3.5 Maintainability and Support Requirements

3.6 Security Requirements

3.7 Cultural Requirements

3.8 Legal Requirements

3.9 Health and Safety Requirements

This section is not in the original Volere template, but health and safety are issues that should be considered for every engineering project.

4 Project Issues

4.1 Open Issues

Currently, there are no known major issues for the project, however as the implementation continues there may need to be changes and problems may

start to occur. Here are the list of some current issues with the game that may need to be improved:

- Some old operating systems such as Windows XP and Windows 7 have difficulty running the game properly.
- Lack of modding support.
- Players run into problems accessing the save folders.
- Players have trouble using the Love framework in order to run the game

4.2 Off-the-Shelf Solutions

A lot of the issues will be solved easily with the use of Unity since it is professionally made for game developers, it is accessible to many operating systems. Also players will not have to deal with the Love framework since the entire project will be created in Unity. Furthermore, if there are any huge problems. The code that has created the current game can be slightly modified to fit with Unity. In addition, Unity has it's own physics engine that will be a huge help in creating the environment for the game, instead of creating the game from scratch. It may also help to look into other successful Unity games to see how things have been implemented, some platforming games may give us insight into how to make sure the physics works best for our final product.

4.3 New Problems

New problems have yet to arise in the implementation. However, using Unity may add more problems in how things will be ran on certain systems if we would like to port the game to a mobile device or a console system. Overall, no new problems are expected to rise as a result of this project.

4.4 Tasks

Tasks are listed below.

1. Structures - Create class hierarchies and main game objects.

2. Overall Mechanics - Getting the character moving between two portals and interacting with environment
3. Level Design - Creating levels that the user can play and the character can be placed into.
4. Interfaces - Main programming interfaces such as Menu, Game Over, and Pause Screens.
5. Graphics and Sound - Main graphics, music and animation for the game.
6. Improvements - Adding different aspects of the game such as newer levels or different mechanics.

4.5 Migration to the New Product

Since we are creating the same product, there is no migration to a newer product at this time.

4.6 Risks

Overall, risks are few and far between when it comes to recreating Mario, but there are some risks that we would like to minimize. Flashing colours on the screen may trigger epileptic seizures for some users. Also, if the game is not optimized well, overheating of the system may damage users systems or cause minor burns. Although the chances of these problems arising are extremely low, they will be kept in mind when creating the final product.

4.7 Costs

Currently there are no costs associated with this project.

4.8 User Documentation and Training

User Documentation will be created as per the SFWR 3XA3 guidelines. Training/Tutorial will be implemented into the game through screen shots or a small in game user manual.

4.9 Waiting Room

There are currently no requirements or problems that have not been met or solved. This section will be updated as needed.

4.10 Ideas for Solutions

There are currently no ideas for solutions and no overall plan for these solutions. This section will be updated as needed.

5 Appendix

This section has been added to the Volere template. This is where you can place additional information.

5.1 Symbolic Parameters

The definition of the requirements will likely call for SYMBOLIC_CONSTANTS. Their values are defined in this section for easy maintenance.