

Software Requirements Specification

The Dungeon Explorer



October 21, 2016

1. **Introduction**

This section contains an overview of the SRS. Also, this section gives an overview of the software system.

**1.1. Purpose**

The Purpose of this document is to give a detailed overview of the Dungeon Master (RPG).

It will convey information clearly and directly for the software development team.

* 1. **. Scope**

The scope of this project is to develop a complete 2D Role Playing (RPG) game. This includes creating all graphical user interfaces, Game algorithms, and graphical imagery. The game takes place in a dungeon environment, with text-based progression. The game also has random encounters with multiple enemy types, and a complete inventory system. The game will not be multiplayer or have network capabilities.

**1.3. Definitions, acronyms, and abbreviations**

|  |  |
| --- | --- |
| UNITY | A game engine for software development |
| C# | A general purpose object-oriented language |
| GIMP | Photo and graphic development software |
| GUI | Graphical User Interface |
| RPG | Role Playing Game |

**1.4. References**

A *use case diagram* has been attached to section 3.1. Also attached to section 3.1 is a *use case* requirement tractability matrix.

IEEE Software Engineering Standards Committee, “IEEE Std 830-1998, IEEE Recommended Practice for Software Requirements Specifications”, October 20, 1998.

**1.5. Overview**

This document contains all information pertaining to the specifics of development of this software system. It contains the intended purpose of the game, and gives a complete detail of all the components involved. Also, the document describes the technologies that intend to be used in the development process.

1. **General Description**
   1. **Product Perspective**

The software being developed is a 2D role playing game that is based in a dungeon environment. The software will work on Windows, Mac, and Linux machines. The minimum memory requirement is 512 Mb. The minimum CPU requirement is AMD Athlon, or an Intel i3 processor. The system must also have at least 500mb of hard drive space for installation.

**2.2 Product Functions**

This game will let the user pick their desired player race and class. The user will have the ability to choose between four different player and race classes. The user will then have the ability to start a new game, or continue a saved game. The user can navigate through the game using a keyboard and interact with GUI components with their mouse. The user will be able to select though a list of inventory items at their discretion. Also, random enemy encounters will occur through the game where the user can select to attack their opponents with a random chance of doing damage.

**2.3 User Characteristics**

There is only one intended user of the software system. This user’s purpose is only to play the game.

**2.4. Constrains**

The constraints of this software systems access to a keyboard and mouse, and minimum system requirements. These requirements include CPU, memory, and storage space. (See section 2.1)

**2.5. Assumptions and dependencies**

The assumption about this product is that it’s intended to only be used by a PC. If the PC does not meet the necessary system requirements, the software will perform poorly.

**3. Specific Requirements**

Section 3 will cover interface, functional, and quality requirements.

**3.1 External Interface Requirements**

**3.1.1 User Interfaces**

The UI for the main menu will consist of buttons names in the coming up list:

* Play – To start a new game
* Load – To load an old game
* Exit – To exit the program

The pause menu will consist of:

* Save – Save the current status of the game
* Load – To load an old game
* Quit Game – Quit to the menu
* Exit – Quit the program

**3.1.2 Hardware Interfaces**

No specific hardware is required, outside a desktop pc to play on.

**3.1.3 Software Interfaces**

No other apps are required to run the game, so there is no communication with other software

**3.1.4 Communication Interfaces**

There is no communication to an external server. Everything is handled within the game

**3.2 Functional Requirements**

**3.2.1.1 Functional Requirement 1.1**

**ID: FR1**

TITLE: Start New Game

DESC: The user will start a new game so they can play it.

RAT: To start the game

DEP: None

**3.2.1.2 Functional Requirement 1.2**

**ID: FR2**

TITLE: Save Game

DESC: User must have the ability to save the instance of the game.

RAT: To save the game so it can be played later

DEP: FR1

**3.2.1.3 Functional Requirement 1.3**

**ID: FR3**

TITLE: Load Game

DESC: The user must be able to load the saved instance of the game.

RAT: To load the game that was saved

DEP: FR2

**3.2.1.4 Functional Requirement 1.4**

**ID: FR4**

TITLE: Select Race

DESC: The user must be able to choose their race for different stats

RAT: The race of the character from FR4

DEP: FR1

**3.2.1.5 Functional Requirement 1.5**

**ID: FR5**

TITLE: Select Class

DESC: The user must be able to select their class they desire for different stats

RAT: The class of the character from FR4

DEP: FR1

**3.2.1.6 Functional Requirement 1.6**

**ID: FR6**

TITLE: Move character

DESC: The user will move their character around a maze and get random encounters. The user must be able to move North, South, East, and West during basic navigation.

RAT: To move the character around a maze

DEP: FR3

**3.2.1.7 Functional Requirement 1.7**

**ID: FR7**

TITLE: Fight enemies

DESC: The user must be able to encounter enemies and fight them

RAT: Fight enemies that will appear in the maze

DEP: FR6

**3.2.1.8 Functional Requirement 1.8**

**ID: FR8**

TITLE: Access Inventory

DESC: The user must be able to access the inventory system to access items.

RAT: Access items that the player will obtain

DEP: FR3

**3.2.1.9 Functional Requirement 1.9**

**ID: FR9**

TITLE: Pick up loot

DESC: After a battle, enemies will drop loot that the user must be able to pick up.

RAT: To pick up the items that will be stored in the inventory

DEP: FR7

**3.2.1.10 Functional Requirement 1.10**

**ID: FR10**

TITLE: Change Armor

DESC: The user will change their current armor with armor that they picked up from loot. By doing this, they will become stronger.

RAT: To equip better for making fights easier

DEP: FR8

**3.2.1.11 Functional Requirement 1.11**

**ID: FR11**

TITLE: Change Weapon

DESC: The user must be able to change their weapon to the desired weapon of their choice if they have it in there. inventory system.

RAT: To change weapons to make killing enemies easier

DEP: FR8

**3.2.1.12 Functional Requirement 1.12**

**ID: FR12**

TITLE: Use Item

DESC: The user must be able to use the special items in the inventory system.

RAT: To help the player in certain situations

DEP: FR8

**3.3 Performance Requirements**

**ID: QR1**

TITLE: Run smoothly

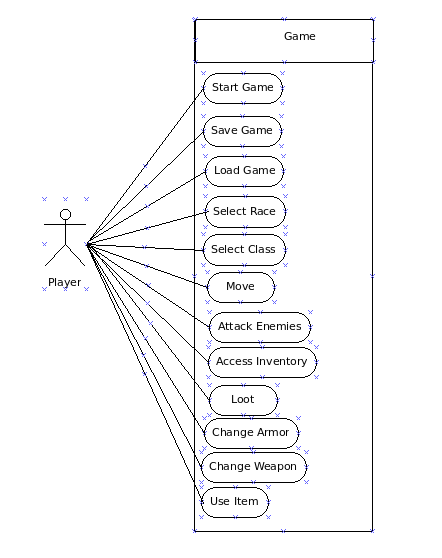
DESC:

RAT: The game needs to run smoothly

DEP: none

**4. Specific Requirements**

**4.1 Use Case Diagram**



**4.2 Traceability Matrix**

Traceability Matrix:

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Requirements** | **Prioities** | **UC-1** | **UC-2** | **UC-3** | **UC-4** | **UC-5** | **UC-6** | **UC-7** | **UC-8** | **UC-9** | **UC-10** | **UC-11** | **UC-12** |
| R01 | 1 | X |  |  |  |  |  |  |  |  |  |  |  |
| R02 | 2 |  | X |  |  |  |  |  |  |  |  |  |  |
| R03 | 2 |  |  | X |  |  |  |  |  |  |  |  |  |
| R04 | 3 |  |  |  | X |  |  |  |  |  |  |  |  |
| R05 | 3 |  |  |  |  | X |  |  |  |  |  |  |  |
| R06 | 3 |  |  |  |  |  | X | X |  |  |  |  |  |
| R07 | 4 |  |  |  |  |  |  | X |  | X |  |  |  |
| R08 | 4 |  |  |  |  |  |  |  | X |  | X | X | X |
| R09 | 4 |  |  |  |  |  |  |  |  | X |  |  |  |
| R10 | 5 |  |  |  |  |  |  |  |  |  | X |  |  |
| R11 | 5 |  |  |  |  |  |  |  |  |  |  | X |  |
| R12 | 5 |  |  |  |  |  |  |  |  |  |  |  | X |
| UC-Priorities |  | 1 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 |

**4.3 Expanded Use Case**

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| --- | --- |
| Name | UC-1: Start Game |
| Summary | User Starting a new game |
| Rationale | When starting a new game, the user needs the option to select a new game |
| Users | All users |
| Pre-conditions | User has to be able to turn on the game |
| Basic course of events | 1. The user indicates that the software perform a new game 2. The software responds by starting new game |
| Alternative Paths | 1. In step 1, the user indicate the software performs a new game. In this case the user wants to load a previously started game. |
| Post-conditions | A game has been started. |

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| Name | UC-2: Save Game |
| Summary | User saves instance of game |
| Rationale | While playing the game, user wish’s to save game to come back later. |
| Users | All users |
| Pre-conditions | User must be playing the game to save it. |
| Basic Course of Events | 1. User tells the software that they wish to save game. 2. Software confirms the user wish’s to save and saves instance |
| Alternative Path | User Changes mind |
| Post-conditions | User saves game |

|  |  |
| --- | --- |
| Name | UC-3: Load Game |
| Summary | User Loads Saved Game |
| Rationale | After playing the game up to a point, you saved it. Now your back and wish to load and start from where you left off. |
| Users | All Users |
| Pre-conditions | User must have a saved game |
| Basic Course of Events | 1. User tells software to start a load game went 2. Software responds by requesting the saved game file 3. User submits the saved game file 4. Software loads game 5. User starts game from where they left off |
| Alternative Path | User wish’s to start new gave instead. |
| Post-conditions | User loads saved game. |

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| Name | UC-4: Select Race |
| Summary | User selects Race option |
| Rationale | When starting a new game, you have to select a race for your character |
| Users | All Users |
| Pre-conditions | User must be starting a new game |
| Basic course of events | 1. The user indicates that the software is to perform a new game 2. Software responds by requesting the race the user desires 3. The user picks the race 4. The software confirms race chosen |
| Alternative paths | N/A |
| Post-condition | User picks a race |

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| --- | --- |
| Name | UC-5: Select Class |
| Summary | User selects desired class |
| Rationale | When starting a new game, user must select a class for character |
| Users | All Users |
| Pre-conditions | User must have selected new game and picked a race already |
| Basic course of events | 1. The user indicated to play a new game and has picked race already 2. Software responds by requesting user to pick a class 3. User selects desired class 4. System confirms class choice |
| Alternative paths | N/A |
| Post-conditions | User picked desired class |

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| Name | UC-6: Move |
| Summary | User has the ability to move through the Maze |
| Rationale | The user needs to move through the maze to be able to find the key to the boss |
| Users | All Users |
| Pre-conditions | Must be inside the dungeon |
| Basic Course of Events | 1. The user indicates that the software is to perform a move. 2. The software responds by requesting the direction of the move 3. The user specifies the direction of the desired move. 4. The software moves the character to that location. |
| Alternative Paths: | 1. On Step one the user indicates to perform a move, In this case the user changes mind. |
| Post-conditions | User moves to desired location. |

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| Name | UC-7: Attack Enemies |
| Summary | The user attacks enemies |
| Rationale | While playing the game you will encounter enemies and will have to attack them |
| Users | All Users |
| Pre-conditions | User must be inside dungeon |
| Basic Course of Events | 1. The system will indicate you have encountered an enemy and give you options: 2. Attack 3. Heal 4. The user responds by requesting attack 5. The system confirms choice and attacks enemy. |
| Alternative Paths |  |
| Post-conditions | User attacks enemy |

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| Name | UC-8: Access Inventory |
| Summary | User accesses Inventory |
| Rationale | While playing the game, the user may want to access inventory for many reasons, and needs to be able to do it. |
| Users | All Users |
| Pre-conditions | Must be playing the game |
| Basic Course of Events | 1. The user indicates that the software is to open the inventory 2. The software responds by opening the inventory. |
| Alternate Paths | User changes mind about inventory access |
| Post-conditions | The user accesses the inventory. |

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| Name | UC-9: Loot |
| Summary | User Loots Enemy |
| Rationale | While playing the game the user will encounter enemies, after defeating the enemies, they will drop loot. The user needs to be able to take loot. |
| Users | All Users |
| Pre-conditions | User must have just fought an enemy |
| Basic Course of Events | 1. The software responds by asking if you want to take loot. 2. User confirms they want the loot. |
| Alternative Paths |  |
| Post-Conditions | User loots enemy |

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| Name | UC-10: Change Armor |
| Summary | The user changes Armor |
| Rationale | While playing the game, the user may find a better piece of armor, the user will need the ability to access and replace its armor |
| Users | All Users |
| Pre-conditions | User must be playing game and has accessed its inventory |
| Basic Course of Events | 1. The user indicates they want to access inventory 2. The software responds by showing inventory 3. The user indicates they want to change armor 4. The software responds by requesting new armor selection 5. The user selects new armor 6. The software confirms new armor change |
| Alternative Path |  |
| Post-conditions | User changed armor |

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| --- | --- |
| Name | UC-11: Change Weapon |
| Summary | User changes weapon |
| Rationale | While playing the game, the user might get a better weapon, and would like to change to that weapon. |
| Users | All Users |
| Pre-conditions | User must access inventory |
| Basic Course of Events | 1. The user indicates that the software needs to perform a change weapon action 2. Software responds by requesting new weapon selection. 3. User selects new weapon 4. Software confirms new weapon |
| Alternative Path |  |
| Post-conditions | User changes weapon |

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| --- | --- |
| Name | UC-12: Use Item |
| Summary | User uses item |
| Rationale | While in the game, you could want to use items during fight or heal |
| Users | All Users |
| Pre-conditions | User must be able to access inventory |
| Basic Course of Events | 1. User lets software know there requesting the use of an item. 2. Software responds by asking the item to use. 3. User selects item to be used 4. Software confirms item |
| Alternative Path | User changes mind and chooses not to use item |
| Post-condition | User uses item |