Software Requirements

Specification

Building 4

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Introduction

This section is designed to give a basic description of the intended scope for the software system as well as an overview of the rest of the Software Requirements Specification document. Also included is the purpose for the document, as well as definitions of important terminology and abbreviations.

*Purpose*

The purpose of this document is to provide a comprehensive overview of the requirements for Building 4. It will cover the purpose of the system, as well as a complete breakdown of the design, including constraints, functional and performance requirements, and user interaction. This document will also employ the aid of diagrams to help better illustrate concepts to both the customer and the development team members.

*Scope*

Building 4 is a text based role playing game which will allow the user to create their own character to navigate the game world, defeat enemies, and collect items to wear or sell. Items are equippable gear the player can use to enhance their attributes.

Users will encounter various enemies both of normal difficulty and of higher difficulty (see boss), throughout their adventure in the game world. Bosses will drop higher quality items than normal monsters, and allow progression through the game.

The game is considered completed when the user defeats the final boss.

*Definitions of terms and abbreviations used*

**User-** The person playing the game.

**Boss-** An enemy of above average difficulty.

**Item-** An object the player can equip to increase their attributes.

**Attributes-** The combat stats of the player. These include health & attack power.

**Player character-** User’s controllable avatar within the game.

**Class-** Character archetype that changes some dialogue within the game.

**NPC-** Non-Player Character. Entities that are not controlled by the player.

**Stockpile-** List of items contained by the location.

**Inventory-** List of items held by the player character.

**Game Data-** Refers to all of the classes and objects that are saved or loaded by the game.

**Shop-** A type of location that allows buying or selling of items.

**Ability-** A command that can only be used in combat in an attempt to deal damage to an enemy.

**Location-** A single node in the map.

**Map-** A collection of locations that the player character can visit.

**Attack power-** A variable that determines how much damage a player character can do to an enemy in combat.

**Health-** A measure of how much damage can be taken before death.

**DESC-** Description.

**RAT-** Rationale.

**DEP-**Dependency.

Overall Description

This section of the SRS will give a comprehensive overview of the software system and its users. Concepts covered will include the characteristics of the user, design constraints, as well as assumptions and dependencies of the system. This section will provide necessary information to fully understand the requirements in section 3.

*User Characteristics*

The users of \_\_\_ will be the player actively engaged in interacting with the game software, and progressing along the story toward the end goal.

*Constraints*

The system will be constrained by the fact that it is a text based adventure game, without the assistance of a graphic illustration of the game world, storytelling and dialogue will have to go above and beyond for immersion purposes, and to create a sense of urgency to the user.

Another constraint is that since gameplay takes place entirely in the command line, user action is limited only to commands that may be entered into the command line.

*Assumptions and Dependencies*

It is assumed that the user has at least a basic working knowledge of the command line, and how to enter commands into it.

It is also assumed that the user has a basic working knowledge of adventure role playing games and the basic themes and gameplay functions within. While commands will be explained, no live tutorial is available.

Specific Requirements

This section consists of the functional and performance requirements as well as the design constraints with the system. This includes a descriptive breakdown of the system’s features and the system itself.

*Functional Requirements*

**FR1:**

TITLE: Grab Item

DESC: User should be able to pick an item or loot an item that is on the ground.

RAT: This allows the user to pick up items they may need for the story, battle, etc. It is important to the user because it may affect the outcome of the story

DEP: None

**FR2:**

TITLE: Drop Item

DESC: This allows the user to drop any item from his or her inventory

RAT: In some cases, the user will need to drop an item for their inventory because it has no use or clogging the inventory.

DEP: FR1

**FR3:**

TITLE: Equip Item

DESC: This allows the user to equip an item out of his or her inventory for use.

RAT: Within the game the user may need to take an item out of their inventory to use in Battle or a game situation.

DEP: None

**FR4:**

TITLE: Unequip Item

DESC: The user may find no use for an item and unequip it.

RAT: The user may need to unequip an item because it no longer has any use for the situation the user may be in.

DEP: FR3

**ID: FR5**

TITLE: Create New Character

DESC: User should be able to create a new in game character of desired gender and player class.

RAT: The user may prefer to play through the game as a specific gender, and may have a class preference due to gameplay style or roleplaying desires.

DEP: None

**ID: FR6**

TITLE: Save Game

DESC: User should be able to save game progress to be loaded and resumed at a later time.

RAT: User may not be able to complete entire game in one session, or may wish to stop playing and save progress to load at a later time, and resume playing where he or she left off.

DEP: None

**ID: FR7**

TITLE: Load Game

DESC: User should be able to load a previously saved game file and resume progress.

RAT: The user may wish to resume game progress from a previous session, without starting from the beginning each time.

DEP: FR6

**ID: FR8**

TITLE: Exit Game

DESC: User should be able to exit gameplay to the main menu with or without saving progress.

RAT: User will need a way to cease gameplay and return to the main menu to either start over, load a previous saved game, or close program entirely

DEP: None

**ID: FR9**

TITLE: Close Program

DESC: User should be able to close game program entirely and return to his or her desktop environment.

RAT: User will eventually want to stop playing the game and resume other activities on his or her computer.

DEP: None

**ID: FR10**

TITLE: Buy Item

DESC: The user must be able to purchase items from the shop in the game and acquire goods.

RAT: After acquiring in-game currency, the user will need to use it at the shop in the game to obtain new items that can benefit them progressing in the game.

DEP: None

**ID: FR11**

TITLE: Sell Item

DESC: The user must be able to sell unwanted items to the shop in order to acquire in-game currency.

RAT: If the user has an excess of items and they do not wish to keep them, they must have the ability to sell them and receive money in return.

DEP: None

**ID: FR12**

TITLE: Engage in Combat

DESC: The user must be able to initiate combat with attackable NPCs in the game.

RAT: In order to progress in the game, the user needs to win battles against attackable NPCs. In order to battle, the user needs to have the ability to initiate these engagements.

DEP: None

**ID: FR13**

TITLE: Use Ability

DESC: When engaged in combat, the user needs the ability to use abilities in order to succeed in the battle.

RAT: Users need a method to win the combat engagements. Winning consists of successfully using abilities.

DEP: None

**ID: FR14**

TITLE: Flee Combat

DESC: When engaged in combat, the user needs the ability to flee from the engagement if they choose when it is their turn to use their abilities.

RAT: Occasionally the user might not want to engage in combat or they might want to stop mid-battle if they fear losing.

DEP: None

**ID: FR15**

TITLE: Converse

DESC: User has ability to communicate with NPC.

RAT: In the game it may be important for the user to Communicate with NPC in order to figure out its intentions.

DEP: none

**ID: FR16**

TITLE: Move player character

DESC: User has the ability to move their player character.

RAT: Movement around the map is required to advance through the game.

DEP: None.

**ID: FR17**

TITLE: View location details

DESC: User has the ability to display the details of their current location, including its description, exits, and contents.

RAT: Because this is a scrolling text-based game, the location details might be pushed out of the visible section of the text area. Redisplaying location details solves this problem.

DEP: None.

**ID: FR18**

TITLE: View hint

DESC: User has the option to display a hint about their current location.

RAT: Users might not know what they should be doing or might become stuck. Displaying hints should help alleviate this problem.

DEP: None.

**ID: FR19**

TITLE: Display player character attributes

DESC: User has the ability to display their attributes and stats.

RAT: User might want to know what their attributes are, how high their attack power is, or what their current and maximum health is.

DEP: None.

**ID: FR20**

TITLE: View equipment

DESC: User has the ability to display the equipment (or lack thereof) that their player character is wearing.

RAT: User might want to compare a new item to their current equipment to determine if they want to equip the new item or sell it.

DEP: None.

**ID: FR21**

TITLE: View player inventory

DESC: User has the option to display the contents of their inventory.

RAT: User might want to know what items they are currently holding on their player character to make decisions about what to do with them.

DEP: None.

*Performance Requirements*

**ID: QR1**

TITLE: Combat Commands

DESC: In game combat flow should be direct and easy to understand for the user

RAT: Being a text based game environment, it is imperative all text commands are easy to follow.

DEP: None.

**ID: QR2**

TITLE: Inventory Management Commands

DESC: Inventory management commands (pick up, drop, equip, unequip) should be direct and easy to understand for the user

RAT: Being a text based game environment, it is imperative all text commands are easy to follow.

DEP: None.

**ID: QR3**

TITLE: NPC Dialogue

DESC: NPC dialogue should be entertaining, but also provide hints and important game information.

RAT: A large portion of story progression will come from NPC conversations, information must be available, but dialogue must be interesting to maintain immersion

DEP: None.

**ID: QR4**

TITLE: File Management Commands Usage

DESC: Commands to exit game, save, load and quit should all be easy to understand and locate.

RAT: The user should be able to effortlessly locate the appropriate command to save game, exit to main menu, load game, and close program

DEP: None.

*Design Constraints*

**ID: QR5**

TITLE: Command Line Usage

DESC: Game environment exists exclusively in command line; development will be limited to text based interactions.

RAT: Being a text based game environment, development will be without the use of any sort of graphics, and considerations must be made to maintain clarity and immersion.

DEP: None.

**ID: QR6**

TITLE: Difficulty

DESC: The game is intended for a single player for entertainment purposes

RAT: Due to target audience being the average gamer and game being single player, care must be taken to stay within an appropriate scope of difficulty to keep interest and not discourage the user, while still offering a sense of accomplishment.

DEP: None.

Use Cases

This section of the SRS will list each expanded use case, the use case diagram, and the traceability matrix. The use cases will break down the basic functionality of the system, and the traceability matrix will show the priority of the different requirements.

*Expanded Use Cases*

|  |  |
| --- | --- |
| **Name** | **UC-1 Shop** |
| Summary | The user may buy and sell items at the shop |
| Rationale | When the player enters the store, they need to have the ability to purchase new items and sell items that are currently in their inventory |
| Users | All users |
| Precondition | The user must be at the location of the store in order to initiate a purchase or sale |
| Basic Course of Events | 1. The user decides to buy or sell  a. Buying  i. The user decides which item they would like to buy  ii. Money is transferred to the shop, then after buying the item, the item is moved into the player’s inventory  b. Selling  i. The user decides which item they would like to sell  ii. After selling the item, the item is removed from their inventory and money is acquired  2. When completed with buying and/or selling, the user is free to resume movement throughout the map |
| Alternative Paths | If the user does not have enough money to purchase the desired item, they will not be able to |
| Postcondition | If purchase or sale is completed successfully, the user will either have a new item in their inventory or money acquired from their sale |

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| --- | --- |
| **Name** | **UC-2 Combat** |
| Summary | The user will be able to initiate combat, use their abilities when battling, and flee if they choose to |
| Rationale | Most of the progression through the game involves engaging in combat and acquiring loot from those engagements |
| Users | All users |
| Precondition | The user must be at a location with an attackable NPC |
| Basic Course of Events | 1. The user initiates combat with an attackable NPC  2. The user is able to then use their abilities on the enemy  a. Whenever it’s the user’s turn to use their abilities, they will also have the option to flee the engagement if they choose  3. When combat is over, the user then has the ability to acquire any loot that the enemy may relinquish afterwards |
| Alternative Paths | If the user was to lose the battle they would be sent back to their last save state |
| Postcondition | The user will either succeed in combat and be able to continue on in their journey or if they were to lose, they would be returned to their last save state |

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| **Name** | **UC-3 Exit Game** |
| Summary | User disconnects from the game, returning to the main menu with or without saving progress. |
| Rationale | Users will need a way to disconnect from game and stop playing. |
| Users | All users. |
| Precondition | Game is running on user’s computer. |
| Basic Course of Events | 1. User enters command to exit game.  2. User is prompted by system to save progress or risk losing all unsaved progress.  3. If applicable, file is saved, and game returns to main menu. |

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| --- | --- |
| **Name** | **UC-4 Close Program** |
| Summary | User is able to close program and exit to his or her desktop. |
| Rationale | User will need a way to exit game entirely. |
| Users | All users. |
| Precondition | User is on the main menu. |
| Basic Course of Events | User selects option to close program  Game file closes, returning user to his or her desktop. |
| Alternative Paths | N/A |
| Postcondition | User is returned to his or her desktop. |

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| --- | --- |
| **Name** | **UC-5 Manage Data** |
| Summary | User is able to either load game from a previous save file, create a new character, and save progress. |
| Rationale | User will need a way to resume gameplay from a previous save point, start a new game by creating a new character, and save progress. |
| Users | All users. |
| Precondition | 1. Load  - User is on main menu with a previous save file available  2. Create Character  - User is on main menu  3. Save  - User is actively engaged in gameplay session with progress to be saved. |
| Basic Course of Events | A. Load  1. User selects “Load Game” option from main menu  2. System places player into game world where he or she left off  B. Create Character  1. User selects “New” option from main menu  2. System loads character creation  3. User selects preferred gender  4. System saves character gender  5. User selects preferred character class  6. System saves character class  7. User selects finish  8. System places player in game world    C. Save  1. User enters command to save game  2. System asks user to confirm desire to save progress  3. System saves user’s progress to be loaded in the future |
| Alternative Paths | In step A if the user does not have a previous save file, the system will provide an error message and nothing happens.    In step B the user may choose to exit character creation back to the main menu.  In step C user may choose not to confirm save |
| Postcondition | User is returned to his or her desktop. |

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| **Name** | **UC-6 Move player character** |
| Summary | Player character is moved in the specified direction |
| Rationale | Users need to be able to move their character around to progress through the game. |
| Users | All users. |
| Precondition | User has created a player character and is currently in a game session. |
| Basic Course of Events | 1. User enters a direction to move.  2. System responds by moving the player character from the current location to a new location as specified by the direction, then displaying the new location’s details. |
| Alternative Paths | In step 2, if the direction indicated is invalid, an error message is displayed and nothing else happens. |
| Postcondition | Player character is moved to a new adjacent location on the map in the specified direction. |

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| **Name** | **UC-7 View location details** |
| Summary | Location details are displayed to the screen. |
| Rationale | The user might want to redisplay the location’s details after something has updated or text has flooded the screen. Without this option, a user might forget what’s in the room they are in or what directions the exits are. |
| Users | All users. |
| Precondition | User has created a player character and is currently in a game session. |
| Basic Course of Events | 1. User enters a command to display the details of the location they are in.  2. System responds by printing out the location’s description, list of exits, and the characters/items in it. |
| Alternative Paths | In step 1, if the user adds a parameter to the display command, then an additional string of text will be printed in step 2. This string contains hints for that area that might help the player if they get stuck. |
| Postcondition | Location details are printed to the screen. |

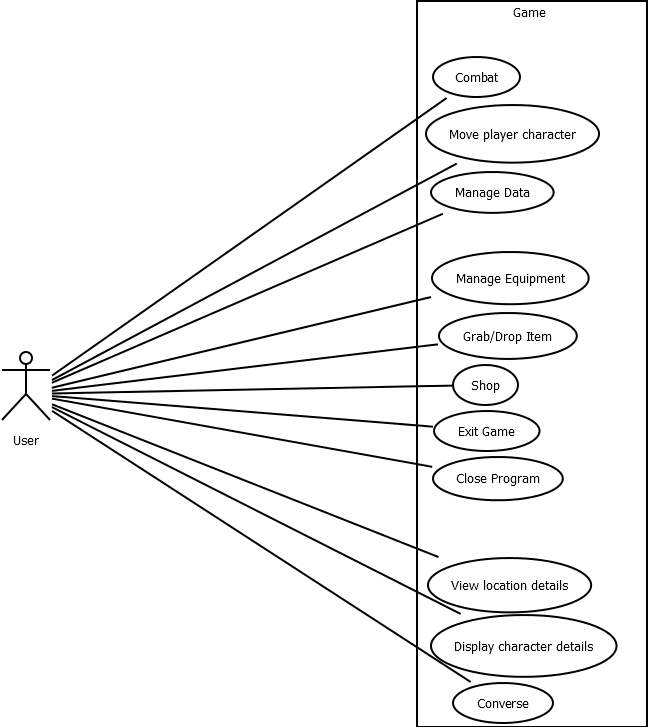
|  |  |
| --- | --- |
| **Name** | **UC-8 Display player character details** |
| Summary | Specified details about the player character are printed to the screen |
| Rationale | The user might want to view information about their character, or what they are equipping/holding. |
| Users | All users. |
| Precondition | User has created a player character and is currently in a game session. |
| Basic Course of Events | 1. User enters a command to display details about the player character  2. System responds by printing the specified details to the screen. |
| Alternative Paths | In step 1, the user might enter a command to do one of the following:  1. Display character attributes.  2. Display character’s equipped items.  3. Display character’s inventory    This is what specifies what the system prints in step 2. |
| Postcondition | Character details are printed to the screen. |

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| **Name** | **UC-9 Manage Equipment** |
| Summary | The ability for the user to manage or control his or her equipment |
| Rationale | When playing the game, the user will have an inventory of items. The user will eventually have to wield an item in order to battle or defend against the NPC. It is important for the user to be able to equip or unequip certain items from their inventory for certain situations to use in battles, healing, and gaining power from certain items |
| Users | All Users |
| Precondition | Having an item already equipped or an item that is in the inventory. |
| Basic Course of events | 1. User comes across situation where item needs to be equipped or unequipped  2. User issues command to equip item from inventory or to unequip item from inventory.  3. Item is now wielded by user |
| Alternative paths | If there is not an item within the inventory, or an item not currently equipped, the system will not allow the equip of unequip function |
| Postcondition | one item added or subtracted from inventory |

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| --- | --- |
| **Name** | **UC-10 Grab/Drop Item** |
| Summary | The user is able to pick or discard items from inventory |
| Rationale | The User will have an inventory that can hold items. If the user finds an item that they feel will be of use to them, then the user will be able to pick that item up. If the users inventory is full or the user needs to discard an item from their inventory, then they will have that option. |
| Users | All users |
| Precondition | User finds an item on the ground or has a full inventory and needs to drop item |
| Basic Course of Events | 1. An item is found by the user or there is an unnecessary item the user does not want  a. The user may approach item and then system issues question to user whether or not they would like to pick up item  b. User enters inventory and system issues question if they would like to extract item  2. The system takes users command and issues request  3. User gains or subtracts item from inventory |
| Alternative paths | If user does not have an item within their inventory, then user will not be able to extract item.  If users inventory is full then the user cannot gain an item |
| Postcondition | User Has new item or extracted an item |

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| **Name** | **UC-11 Converse** |
| Summary | The ability for the User to talk or communicate with the NPC. |
| Rationale | Some of the NPCs within the game may be good or bad. The User needs to be able to communicate with the NPC to figure out its intention and get helpful hints and tips. |
| Users | All users |
| Precondition | User confronts NPC |
| Basic Course of Events | 1. User issues command to speak with NPC  2. System responds by speaking through the NPC to respond to the user |
| Alternative Paths | If there is no NPC it is impossible to issue command to speak with one |
| Postcondition | User has conversed with NPC |

*Use Case Diagram*



*Traceability Matrix*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Priority Weight | UC-1 | UC-2 | UC-3 | UC-4 | UC-5 | UC-6 | UC-7 | UC-8 | UC-9 | UC-10 | UC-11 |
| FR-1 | 2 |  |  |  |  |  |  |  |  |  | x |  |
| FR-2 | 2 |  |  |  |  |  |  |  |  |  | x |  |
| FR-3 | 2 |  |  |  |  |  |  |  |  | x |  |  |
| FR-4 | 2 |  |  |  |  |  |  |  |  | x |  |  |
| FR-5 | 3 |  |  |  |  | x |  |  |  |  |  |  |
| FR-6 | 3 |  |  |  |  | x |  |  |  |  |  |  |
| FR-7 | 3 |  |  |  |  | x |  |  |  |  |  |  |
| FR-8 | 2 |  |  | x |  |  |  |  |  |  |  |  |
| FR-9 | 2 |  |  |  | x |  |  |  |  |  |  |  |
| FR-10 | 2 | x |  |  |  |  |  |  |  |  |  |  |
| FR-11 | 2 | x |  |  |  |  |  |  |  |  |  |  |
| FR-12 | 3 |  | x |  |  |  |  |  |  |  |  |  |
| FR-13 | 3 |  | x |  |  |  |  |  |  |  |  |  |
| FR-14 | 3 |  | x |  |  |  |  |  |  |  |  |  |
| FR-15 | 1 |  |  |  |  |  |  |  |  |  |  | x |
| FR-16 | 3 |  |  |  |  |  | x |  |  |  |  |  |
| FR-17 | 1 |  |  |  |  |  |  | x |  |  |  |  |
| FR-18 | 1 |  |  |  |  |  |  | x |  |  |  |  |
| FR-19 | 1 |  |  |  |  |  |  |  | x |  |  |  |
| FR-20 | 1 |  |  |  |  |  |  |  | x |  |  |  |
| FR-21 | 1 |  |  |  |  |  |  |  | x |  |  |  |
| Score | | 4 | 9 | 2 | 2 | 9 | 3 | 2 | 3 | 4 | 4 | 1 |