CSCI441_VC_Software Engineering

Text Adventure Game

Team: G

Team Members

Fernando Duffoo	**Management & Organization**
Isaac Howard	**Programming**
Johnathan Bennett	**Design**

Project URL: http://github.com/

Part 1 Statement of Work and Requirements

Customer Statement of Requirements

In the contemporary gaming environment, numerous video games place a high emphasis on cutting-edge graphics, frequently utilizing 2D or 3D visuals to craft captivating and visually impressive universes. While these games unquestionably provide a wide array of experiences, they also bring about a series of socio-technological hurdles that may hinder inclusiveness and accessibility within the gaming community.

This project attempts to move away from the high graphics model and provide story based and engaging content. This allows for easier use of assisting tools such as screen readers. This additionally permits more lenient hardware requirements.

The application aims to have a fun and creative gaming experience that appeals to a large audience. The application will be able to challenge decision making skills while navigating through a dangerous new world.

The user will be able to access the menu to start game, save game, load game, view status bar, and quit the game.

The user interface will display the menu as well as the main functional portion of the application.

In summary, the central socio-technological issue addressed by this project pertains to the exclusionary aspects found in contemporary gaming, stemming from demanding system specifications and insufficient accessibility for those with disabilities. Our mission is to advocate for inclusivity, aiming to enhance accessibility and enjoyment in gaming for a wider audience, thereby tackling the critical socio-technological challenges within the gaming industry.

Glossary of Terms

User- a person who intends to use the application for entertainment or educational purposes.

User interface- the means by which the user and a computer system interact, in particular the use of input devices and software.

System Requirements

Functional Requirements:

Identifier	PW	Requirement
REQ1	5	The system's interface shall allow the user to start game, save, load, view status, and exit game.
REQ2	5	The systems interface shall allow for text commands to control their progress through the game.
REQ3	4	The system will allow for shortcuts for common commands.

Non-Functional Requirements:

Identifier	PW	Requirement
REQ4	3	The system shall provide a non-cluttered, user friendly, easy to understand interface.
REQ5	3	The system shall have preferences for font and display styles.

On-Screen Appearance Requirements:

Identifier	PW	Requirement
REQ6	5	The system shall use a display containing the menu and the functional portion of the game application.

Gantt Chart

	Start Date	End Date	Status
Text Adventure Game	08-28-2023	12-04-2023	Incomplete
Design Discussion	09-01-2023	09-04-2023	Complete
Initial Design	09-04-2023	09-11-2023	Complete
Detailed Design	09-11-2023	09-18-2023	Incomplete
Analysis of Implementable Tools	09-18-2023	10-08-2023	Incomplete
Perform System Testing	10-08-2023	10-09-2023	Incomplete
Document Bugs Found	10-09-2023	10-10-2023	Incomplete
Debug	10-10-2023	10-29-2023	Incomplete
First Demo	10-29-2023	10-30-2023	Incomplete
Review Feedback	10-31-2023	11-01-2023	Incomplete
Redesign	11-01-2023	11-13-2023	Incomplete
Develop & Integrate	11-13-2023	11-15-2023	Incomplete
System Testing	11-15-2023	11-20-2023	Incomplete
Document Bugs Found	11-20-2023	11-23-2023	Incomplete
Debug	11-23-2023	11-25-2023	Incomplete
Deployment	11-25-2023	11-26-2023	Incomplete
Second Demo	11-26-2023	12-04-2023	Incomplete

Stakeholders

Our primary stakeholders are users who will be directly using the system for their entertainment experience.

Actors and Goals:

Actors	Goals	Use Cases
Player/User	Immerse themselves in the game world, explore and progress through the storyline.	UC1, UC2, UC3, UC4, UC5, UC6, UC7
NPC	Interact with the player and advance storyline through player choices.	UC3
Save/Load	To allow players to save or load their progress.	UC2
Enemies	To challenge the player through combat encounters.	UC4
Scoring System	To provide a measurement of the players' performance.	UC6

Use Cases:

UC1: Start Game – Player starts a new game.

UC2: Save/Load – Player saves their game progress or loads a previous saved game.

UC3: NPC Interaction – Player engages in conversation with an NPC.

UC4: Combat Encounter – Player engages in combat with one or more enemies.

UC5: Game Over – The game ends and the player must start over or quit.

UC6: Score – The game tracks the player's score.

UC7: Settings – The player preferences such as font, font color, and background color.

Traceability Matrix

Requirements	PW	UC1	UC2	UC3	UC4	UC5	UC6	UC7
REQ1	5	**x**	**x**					
REQ2	5		**x**	**x**	**x**	**x**		
REQ3	4		**x**			**x**		
REQ4	3	**x**	**x**	**x**	**x**	**x**	**x**	**x**
REQ5	3							**x**
REQ6	5	**x**	**x**				**x**	
Max PW	5							
Total PW		13	22	8	8	12	8	6

Fully Dressed Description

Use Case UC1:

Related Requirements: REQ1, REQ 4, REQ 6.

Actor's Goal: Immerse themselves in the game world, explore and progress through the storyline.

Initiating Actor: The Player.

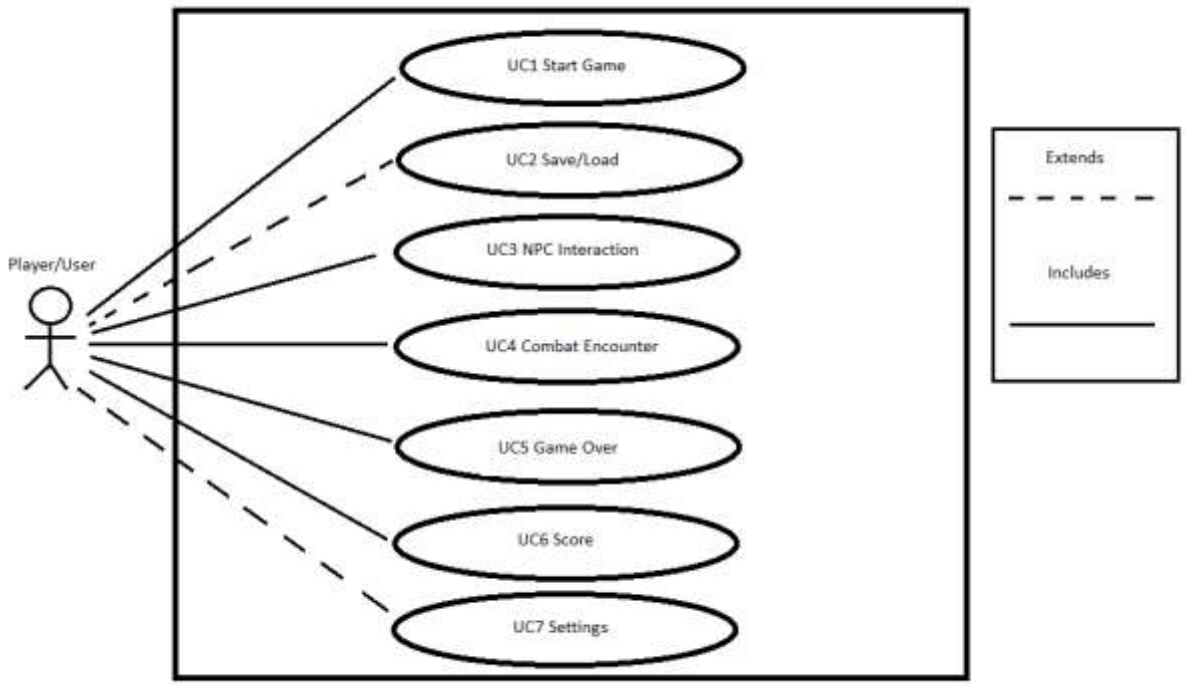
Participating Actor: NPC, Enemies, and the Scoring System.

Preconditions: The player starts the application.

Postconditions: The player can save the game and quit.

Flow of Events for Main Success Scenario:

- ➔ 1. System displays the game's menu.
- ➔ 2. Player selects start or load game.
- ➔ 3. System starts the game and displays GUI.
- ➔ 4. Player progresses through game until they save, quit, or there is a game over.
- ➔ 5. System displays main menu.



Use Case UC3:

Related Requirements: REQ2, REQ4.

Actor's Goal: Interact with the player and advance storyline through player choices.

Initiating Actor: The Player.

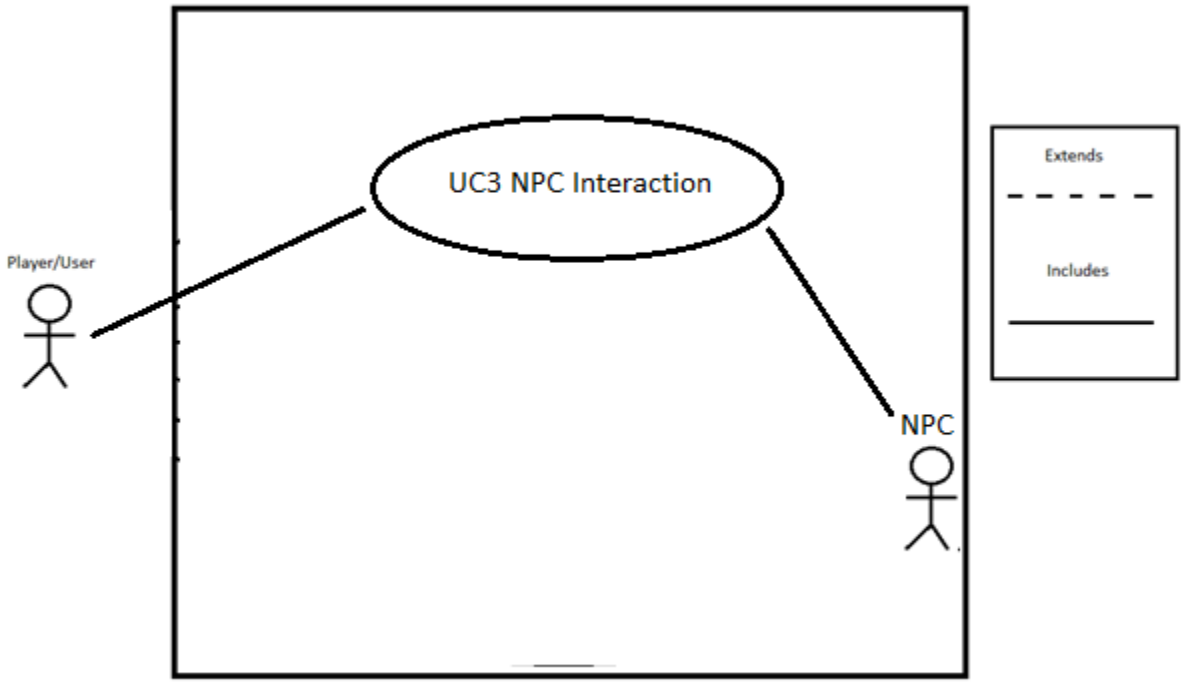
Participating Actor: NPC and Player.

Preconditions: The Player approaches NPC.

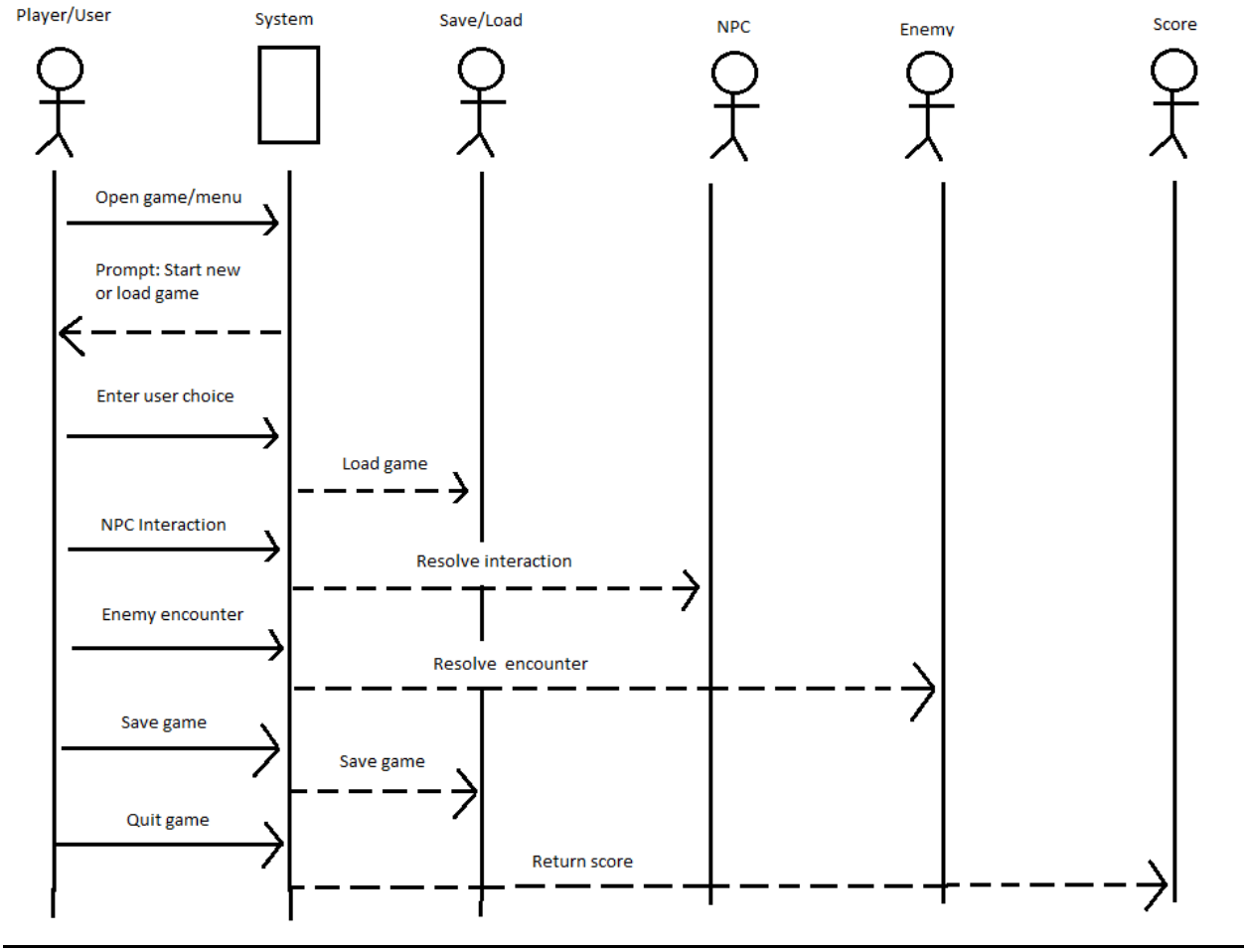
Postconditions: The Player gains information, an item, or completes a quest.

Flow of Events for Main Success Scenario:

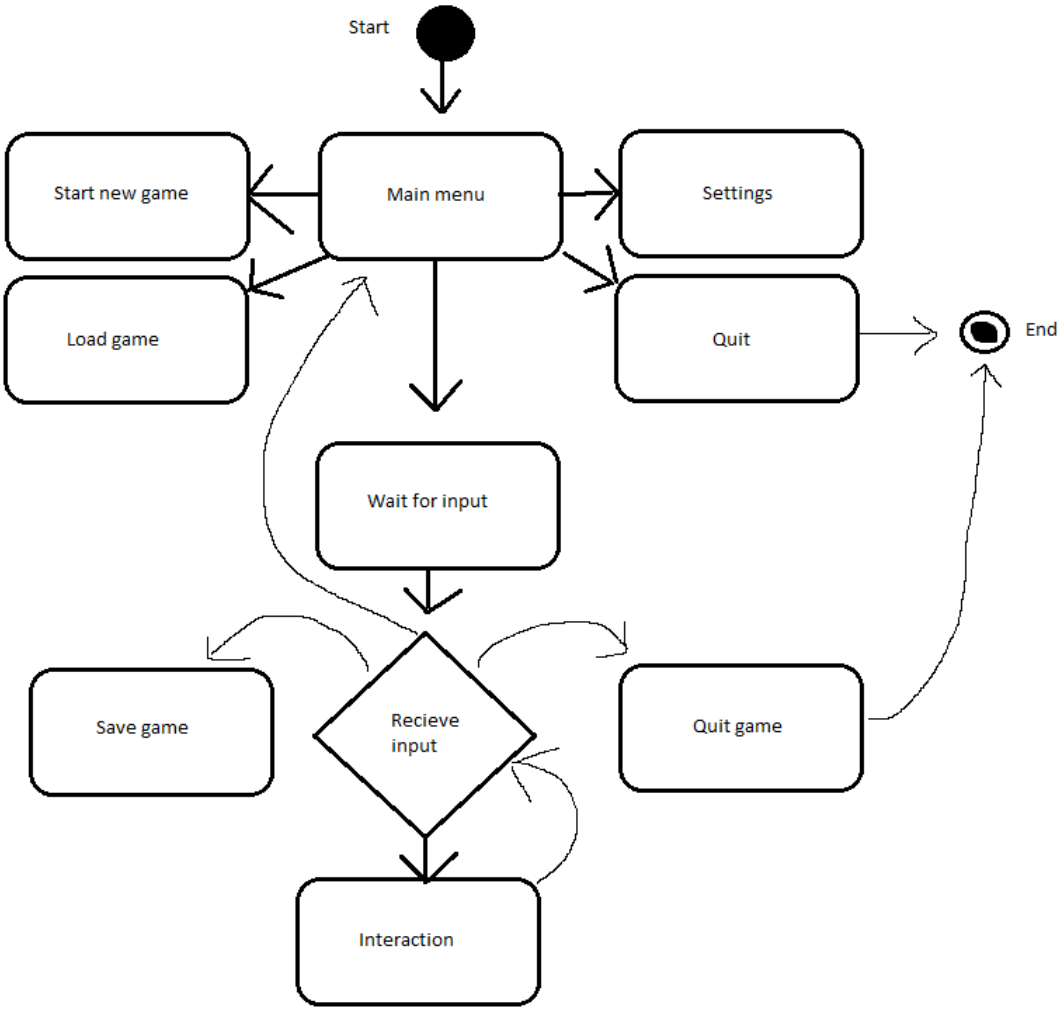
- ➔ 1. Player initiates interaction with NPC.
- ➔ 2. NPC provides varying options for the Player.
- ➔ 3. The Player chooses their option.
- ➔ 4. The NPC provides an item, quest, story completion, or information.
- ➔ 5. The player leaves the NPC.



System Sequence Diagram



Activity Diagram



Architecture Style

The text-based adventure game follows a software architectural style known as Entity Component system (ECS). ECS is typically used in game development. This allows for efficient management of complex interactions and dynamic play. In this pattern there are entities, representing objects, and components representing things such as inventory, health, and location. The game system processes entities with specific components. This allows for modularity and scalability, allowing for expansion of the narrative.

Global Control Flow

Time Dependency:

The game does not rely on real-time constraints. It is not a real time system. Instead, it operates in a turn-based system. Where time doesn't play a role. This allows players to make decisions and progress through the game at their own pace.

Execution Order:

The text-based adventure game operates as an event-driven system, reacting to actions initiated by the user, including selecting dialogue options, making in-game decisions, and initiating interactions with non-playable characters (NPCs). The game's underlying logic relies on these events, shaping the narrative in response to the player's choices. The game does not adhere to real-time constraints or follow periodic actions; instead, it dynamically adjusts to the player's decisions, advancing the storyline accordingly.

Hardware Requirements:

Memory: 8GB

Graphics card: minimum of GeForce 700 for Intel or Radeon 400 series for AMD

Monitor: basic LED monitor

Hard drive: at least 1GB of space