Requirement Analysis Document

## Brief Description of the Game Concept

The game is a turn-based role-playing game that uses point-and-click mechanics. In this game, the player will have to explore three floors of a tower and defeat enemies to progress. Along the way, their player characters will learn new abilities and they can find as much treasure as possible.

# Stakeholders

The intended audience for the game comprises all eligible users, including individuals aged 13 and above. The development team responsible for the creation of this game includes the following members of Turkish Van:

* Stephen Aldred
* Noelle Alston
* Peter Gatira
* Bhojraj Pandey.

Additionally, the project manager overseeing this project is Dr. Nick Allgood.

# Functional Requirements

## Features and Functionalities

* The user will be able to view a leaderboard comparing their progress to other users, and organize it based on different statistics.
* The user will be able to battle enemies and develop strategies revolving around what abilities their player characters know.
* The user can traverse the tower using their mouse to navigate through each floor.
* The game will automatically save the user’s progress as they traverse the tower, ensuring that no progress is lost between rooms.

## User Interaction and Controls

The video game must ensure the precise detection and prompt response to user inputs when interacting with the user interface (UI) elements. The end-user will be utilizing the mouse to navigate through menus, purchase items from stores, battle foes, and traverse across the game's virtual world.

## Gameplay Mechanics

The general mechanics of the game consist of interacting with NPCs, such as enemies through the combat system, and shopkeepers, innkeepers, or shady salesmen through the shop system, utilizing items, and navigating the environment.

The game's combat system has basic and special actions. Basic actions like attacking or defending have a cooldown of 1 turn and require waiting for the opponent's turn. Players can also use special actions, like spells or buffs, obtained from enemy drops or shops. Defense depends on chance and the player's defense buff, with higher buffs increasing the chance of success. Special actions are stronger, offering stat buffs, healing, or powerful attacks. They have a cooldown, preventing their use for a few turns after being used.

The items available within the game through the shop or enemy drops can replicate the actions demonstrated by opponents. However, they are one-time use only and are only functional if they are present in the player's inventory. Potions have been designed to simulate these actions.

Players have the option to have up to two player characters with unique abilities, such as support and attack, among others. While players may switch between characters during their turn and execute an action, both player characters cannot execute actions in the same turn.

In the game, there are three types of nodes used to move around the floors: traversal nodes, safe room nodes, and enemy territory nodes. Players will be able to move their player character using a mouse or touchscreen to click on these nodes. Traversal nodes are basic points that connect to other nodes. Safe rooms let players rest, heal, and access shops and treasure rooms. These shops offer items suitable for the game's difficulty level. However, players should be careful of mimics that can trick them. Enemy territory nodes have encounters with monsters. While players can see upcoming encounters, they won't know what's next until they reach a clear path. Random encounters may be possible, but sorting monsters by floor level ensures balanced gameplay.

## Levels, Progression, and Scoring

The game consists of three levels or floors that progressively get harder due to an increase in enemy resistance and strength. Once the player traverses through the floor they will reach the final enemy node. When the player beats the boss, the stairs next floor will open up allowing them to progress in the game. Each floor will have more nodes allowing the player to have a chance to acquire items to increase their strength so the game remains playable. The player will maintain access to any floor they have beaten and farm enemy drops to increase their stats.

In regards to scoring, the game will keep track of two factors: your kill-to-death ratio and the treasure you've collected on each floor. Both of these will be located in the leaderboard menu however only the kill to death ratio will be ranked in comparison to other players. The treasure count will function as an easter egg or completionist activity for players to do while playing the game.

## Audio and Visual Requirements

### Visual Requirements

It is imperative that users have access to their characters' health, inventory, and abilities at all times, as this information plays a crucial role in their gameplay experience. To facilitate this, we will need to design user interfaces for various elements such as the main menu, login screen, leaderboards, map screen, shops, treasure rooms, inns, and battles. Each type of enemy should have a different sprite to enable users to distinguish between them effectively.

### Audio Requirements

It is advisable to incorporate an audible feedback mechanism in the event of an attack in order to enhance the user experience. Notably, a sound effect accompanying UI elements such as buttons upon clicking could enhance the user's perception that they have successfully executed an action.

## Save and Load Functionality

In order to improve the overall user experience in games, it is important to ensure that players can continue their game from where they left off. To achieve this, when a player loads into a game that they have already started, the game should load them in on the map near the room that they were last in. Additionally, their inventory and health should be saved from their previous login to avoid any disruption to the game flow.

To enable this seamless continuation of gameplay, the game should automatically save the progress of the player after they leave the room they were last in. It should be noted that leaving a room includes not only winning or losing a battle but also exciting treasure rooms, shops, and inns. By saving the game at these points, players can be confident that their progress will not be lost, and they can continue playing the game from where they left off without having to repeat previously completed tasks.

# Non-Functional Requirements

## Performance Requirements

### Response Time

It is important to maintain a responsive and seamless user experience when a user interacts with the game. Ideally, the game should be able to process user input within a 1-2 second window, ensuring that the user's actions are executed promptly and without delay. This can significantly enhance the overall user experience and satisfaction levels.

### Scalability

The website should be compatible with contemporary web browsers and be functional on both desktop and laptop devices. Additionally, it must be capable of accommodating a minimum of 10 simultaneous user connections.

## Security Requirements

### User Data Protection

The proposed game features a secure login system that requires users to enter their unique username and password to access their game data. This system ensures that each user's save file remains unaffected, even when utilized by multiple individuals.

## Usability and Accessibility Requirements

A helpful guide will be made available to users via a button located near the screen edge, which will provide clear instructions on how to navigate the game. This feature will be available on various screens such as the map, the shop, the enemy, and during battles. Its purpose is to assist users in understanding how to interact with the game and its features.

# Constraints

Technical Constraints

As a developer, one has several choices when it comes to designing and constructing a product. In this particular case, the game is designed to be point and click, as opposed to movement systems games that require grids. The core functionality of the game is menu/inventory driven, which means that the user experience is primarily based on the items they collect as they play. Furthermore, the application should be built to be run in a web browser. Therefore, in order to meet these requirements, we will need to utilize certain technologies. Specifically, we will need to utilize SQLite as the database and use Python, JavaScript, HTML, and CSS as the programming languages.

## Time Constraints

The development team has been allocated 56 days, commencing from March 8th, 2024, to complete the game development. Sprint 2 is scheduled to start on March 8th and conclude on April 9th, during which the game is anticipated to be substantially complete with all features and requirements implemented. Sprint 3 is set to commence on April 10th and run until May 2nd, when the team will focus on polishing the game by eliminating any bugs detected during development and testing.