
Software Engineering

Guess Who Game Supplementary Specification

Version 1.0

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Revision History

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Supplementary Specification

1. Introduction

This document lays out the supplementary requirements for the development of the "Guess Who Game," a to-be-developed Java-based interactive guessing game. It complements the use-case model by detailing essential requirements not captured in standard use cases, focusing on defining the game's non-functional aspects that are crucial for quality development.

1.1 Purpose

This document outlines the supplementary specifications for the planned development of "Guess Who Game," a Java-based interactive guessing game. It focuses on defining the system requirements beyond the primary use cases.

1.2 Scope

This specification applies to the development phase of the "Guess Who Game," encompassing all aspects beyond the core gameplay, including non-functional requirements.

1.3 Overview

The document is organized to cover the proposed system's functionality, usability, reliability, performance, supportability, design constraints, and other pertinent aspects.

2. Functionality

This section outlines the core functionalities that the "Guess Who Game" must support to provide a complete and engaging user experience. These functionalities are critical to the game's design and play a significant role in the overall gameplay and interaction.

2.1 Game Initialization:

- **Character Generation:** Automatically generate a diverse set of characters at the start of each game. Each character should have a unique combination of traits (e.g., hair color, eye color, accessories) to ensure a wide variety of guessing options.
- **Trait Assignment:** Assign traits to characters through a dynamic and scalable system, allowing for easy addition of new traits in future game updates. Traits should be categorized and managed in a way that supports efficient trait querying and manipulation during the game.
- **Random Target Selection:** At the beginning of each game session, randomly select one character as the "target" for the player to guess. This selection should be done in a way that ensures fairness and unpredictability in each game round.

2.2 Gameplay Mechanics:

- **Guess Submission:** Implement a user-friendly interface for players to submit their guesses. This could include guessing the target character's traits or the character itself, with immediate feedback provided on the accuracy of the guess.
- **Question Mechanism:** Allow players to ask yes/no questions about the target character's traits, facilitating a strategic approach to narrowing down the possible characters.
- **Trait Revelation:** Gradually reveal traits of the target character as rewards for correct guesses or as game progression mechanics, adding depth and strategy to the gameplay.

2.3 Trait and Property Management:

- **Dynamic Trait System:** Develop a flexible and extensible system for managing character traits, allowing for the easy addition or modification of traits without significant changes to the game's core logic.
- **Trait Interdependencies:** Implement logic to handle trait interdependencies, ensuring that trait combinations are logical and consistent (e.g., a character with "glasses" might be more likely to have the trait "bookish").
- **Property Customization:** Provide a backend framework for customizing trait properties, such as the probability distribution of certain traits, to maintain game balance and diversity.

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2.4 Game Progression and State Management:

- **State Tracking:** Maintain a comprehensive game state that tracks the current round, remaining characters, player guesses, and other relevant metrics to manage game progression effectively.
- **Adaptive Difficulty:** Adjust the game's difficulty dynamically based on the player's performance, such as by modifying the pool of characters or traits based on the number of successful guesses.
- **Win/Lose Conditions:** Clearly define the conditions for winning or losing a game session, including logic for handling end-of-game scenarios and providing options for replayability.

3. Usability

3.1 User-Friendly Interface:

Planning a user-friendly, intuitive command-line interface for player interaction.

4. Reliability

4.1 Robust Error Handling

Developing error handling mechanisms to ensure game stability and consistent user experience.

5. Performance

5.1 Efficient Operation:

Aiming for optimized response times and minimal resource usage to ensure a smooth gaming experience.

6. Supportability

6.1 Maintenance and Documentation:

Focusing on creating well-documented, maintainable code to facilitate future enhancements and support.

7. Design Constraints

7.1 Development Constraints:

Establishing Java as the primary development language, adhering to object-oriented design principles.

8. Online User Documentation and Help System Requirements

Planning comprehensive in-game documentation and help systems for user guidance.

9. Purchased Components

Intending to use open-source Java libraries, minimizing dependency on proprietary components.

10. Interfaces

10.1 User Interfaces

Designing a command-line interface for game interaction.

10.2 Hardware Interfaces and Software Interfaces

Ensuring compatibility with the Java Runtime Environment.

11. Licensing Requirements

The game will be developed with an intent for open-source distribution; specific licensing details to be determined.

12. Legal, Copyright, and Other Notices

Compliance with standard software development practices and copyright norms will be emphasized.

13. Applicable Standards

Adhering to Java development standards and software engineering best practices throughout development.

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