**Software Requirements Specification (SRS) Document**

**Interactive Quiz Game**

1. **Introduction**

The Interactive Quiz Game is a mobile gaming application aimed at challenging and entertaining users, particularly high school students, while enhancing their knowledge across various subject areas. This document outlines the core features, technical requirements, and user experience considerations for the game.

**2. Functional Requirements**

**2.1. Category Selection**

* Users can select subject categories, such as math, physics, history, or biology, to play quiz games in their area of interest.

**2.2. Levels**

* The game comprises multiple levels, with each level containing five questions.
* Players must answer each question within a 5-second time limit.
* To progress to the next level, users must correctly answer a minimum of 4 out of 5 questions in the current level.

**2.3. Scoring**

* Users earn virtual coins for passing each level and for answering questions correctly.
* Faster response times result in higher scores and additional coins.

**2.4. Multiplayer Challenges**

* Users have the option to challenge their friends or other players to quiz duels.
* Challenges involve betting virtual coins, with the winner taking the coins placed as a bet by both players.

**3. Non-Functional Requirements**

**3.1. Performance**

* Response Time: The game should have low latency, ensuring quick question loading and responsive user interactions.
* Scalability: The game should handle an increasing number of users and questions without significant performance degradation.
* Resource Usage: Optimize memory and CPU usage for smooth operation on various devices.

**3.2. User Experience**

* User-Friendly Interface: The game should have an intuitive and visually appealing user interface to enhance the user experience.
* Consistency: Ensure that the game's design and layout remain consistent to prevent confusion.
* Accessibility: Make the game accessible to users with disabilities by complying with accessibility standards.

**3.3. Security**

* Data Protection: User data, including login credentials and personal information, should be securely stored and transmitted using encryption.
* Authorization and Authentication: Ensure that only authorized users can access specific features, such as the admin panel.
* Prevention of Cheating: Implement mechanisms to prevent cheating or tampering with the game, such as preventing users from manipulating their scores.

**3.4. Reliability**

* Availability: The game should be available 24/7 with minimal downtime for maintenance.
* Error Handling: Proper error handling and logging should be in place to troubleshoot and fix issues quickly.

**3.5. Compatibility**

* Cross-Platform Compatibility: Ensure the game works seamlessly on different platforms, including web, mobile, and desktop.
* Browser Compatibility (for web-based games): Ensure compatibility with various web browsers.
* Backup and Recovery: Regularly back up game data and implement a recovery plan in case of data loss.
* Data Privacy: Ensure the game complies with data protection regulations and user privacy standards**.**

**4. Constraints**

**4.1. Hardware Constraints**

* Processor Speed: The game must run on hardware with a minimum processor speed to ensure smooth gameplay (e.g., at least 1.5 GHz).
* Memory (RAM): The game shall not exceed a certain amount of RAM consumption (e.g., not more than 400 mb) for compatibility with lower-end devices.
* Graphics Processing Unit (GPU): Specify minimum GPU capabilities, e.g., support for DirectX 11.
* Storage Space: will ensure the game's installation and saved data do not occupy excessive storage space (e.g., not more than 100 MB).
* Screen Resolution: The game should support a minimum screen resolution (e.g., 1280x720 pixels) for correct UI display.
* Network Connectivity: the game will work with different network speeds and be tolerant of intermittent connectivity.
* Input Devices: will ensure the game works with standard input devices, mouse and physical keyboard.
* Audio Hardware: there will be compatibility with a range of audio hardware standards.
* Battery Usage (for mobile devices): Minimization of battery consumption by optimizing resource usage and background processes.

**4.2. Software Constraints**

* Development Platform: mono game and Unity for game development in C# will be used.
* Operating System Compatibility: will be Windows, Android, iOS.
* Game Engine or Framework: will be Unity version 3.5.2).
* Database System: will be MySQL for storing user profiles, game progress, and question data.
* Cross-Platform Compatibility: the game will run on different platforms (e.g., web, mobile, desktop).
* Browser Compatibility: will ensure compatibility with various web browsers (e.g., Chrome, Firefox, Safari, and Edge).
* Network Protocol: will work with Specific the network protocols and communication methods for online features (e.g., HTTP, WebSocket).
* Security Constraints: Define security standards and constraints for user data protection, including encryption protocols and authentication methods.
* Development Tools and IDE: the development tools and integrated development environments (IDEs) to be used by the development team are Visual Studio.
* Accessibility: will consider accessibility constraints, including support for screen readers, color contrast, and text resizing to make the game accessible to users with disabilities.
* Software Licensing and Intellectual Property Constraints: Address licensing requirements and constraints related to third-party software components and assets used in the game, ensuring compliance with licensing agreements and copyright laws.
* Development Team Collaboration: zoom, WhatsApp will be used to communicate with the team.
* Deployment and Hosting Constraints: will be deploying the game to specific hosting platforms 000webhost.

**5. Conclusion**

The Interactive Quiz Game is designed to challenge and entertain users while enhancing their knowledge across various subject areas.