

# **Mobile Quiz Engine with Social Features**

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## Introduction

The international television game show, **Who Wants to Be a Millionaire**, has long been a popular and exciting question-and-answer competition. The game rules are simple, but the difficulty of questions varies. In our final year project, we also built a mobile game with question-and-answer features, but we included social features and designed a quick, heuristic and feasible algorithm to draw question items from server as well.

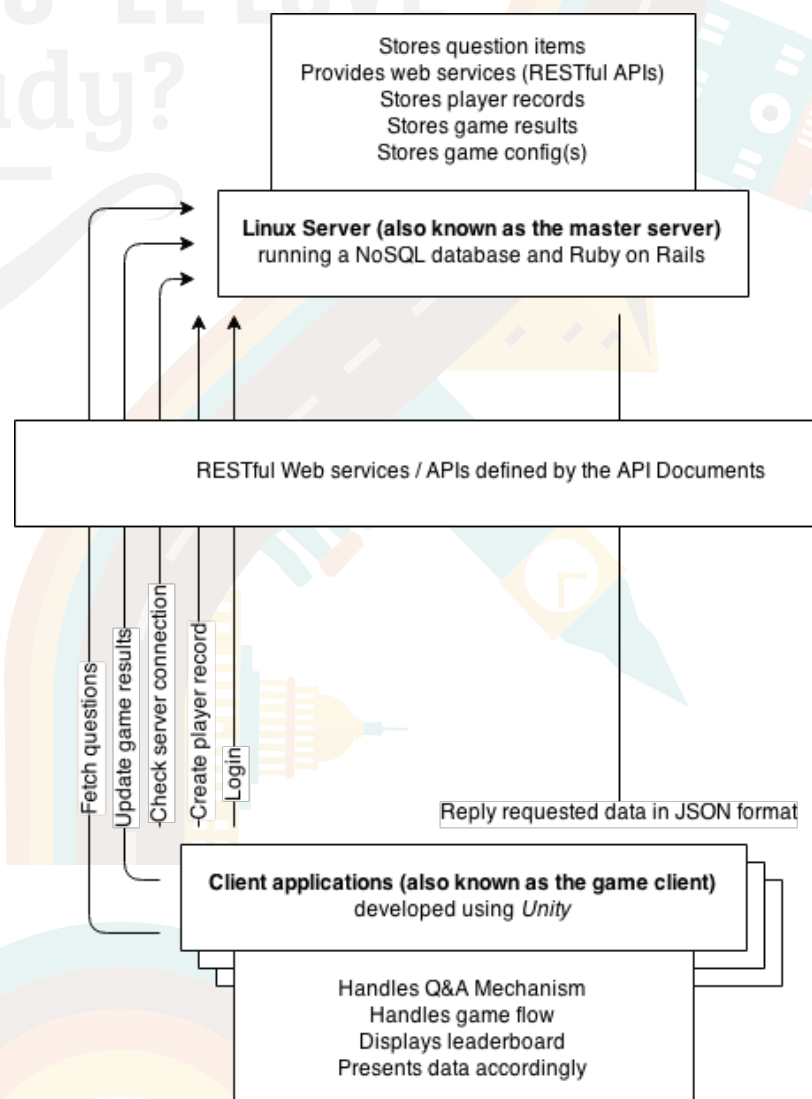
## Main Features

There were several successful and remarkable features in our project:

- + used cutting-edge technologies
- + developed a heuristic question-fetching algorithm
- + prepared a question bank of 1500 question items from 6 categories
- + supported language localization
- + supported easy maintenance and quick changes to game data
- + developed a multi-platform mobile quiz game

## System Architecture

Below shows the system architecture of our project. It includes a server application and a client application, also known as the mobile quiz game.



We made our UI components using Adobe Photoshop and Adobe Illustrator. The following figures (from Fig. 1a to Fig. 1d ) show the screenshots of our mobile quiz game.



Fig. 1a - Stage Select

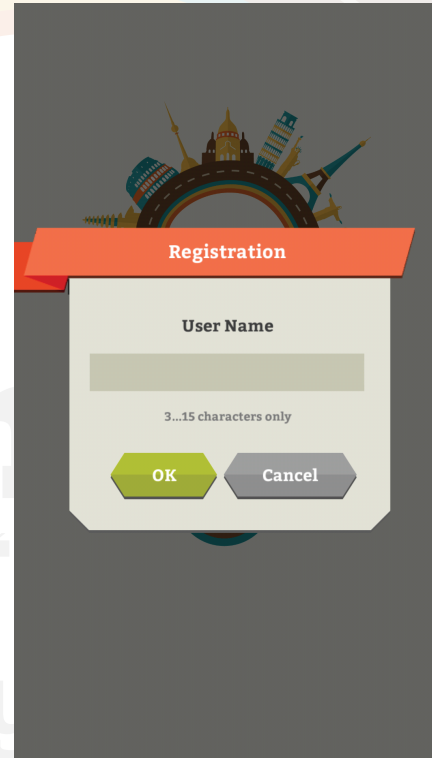


Fig. 1b - Player Registration



Fig. 1c - Gameplay of image questions

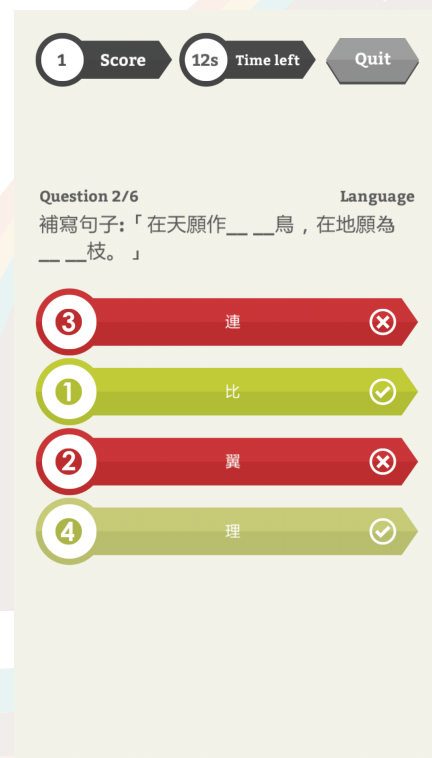


Fig. 1d - Gameplay of sorting questions

## Featured Algorithm

To make a quiz game captivating and enjoyable, the game mechanics as well as the quality of the question items are very important. Although question items for each stage are randomly picked for players, there is an adaptive way to fetch question items smartly.

We record and analyze the player's performance and strength every time a player finishes a stage. For each question item, we also keep the total number of attempts and the number of correct attempts. We therefore know the actual difficulty of each question item.

For each stage, we have a predefined difficulty factor. Our algorithm generates a set of question items based on the difficulty factor of the stage and the past performance of the player.

That means, if a player performs better in Science questions, our algorithm will fetch more Science questions in the case of an easy stage. But in the case of a difficult stage, it will fetch more questions that the player feel difficult and challenging.

The difficulty of a question item will also be affected by the performance of the players who answered that question before. Therefore, it is constantly changing and adapting to players' strength.

As different players have different perception of the difficulty of a stage, we therefore designed and implemented our algorithm in a way that it takes into account the player's strengths in different question categories and then generates a set of question items for a particular stage.

The set of question items generated in this approach are therefore more specific to the player.

## Conclusion

We have successfully achieved all objectives defined at the beginning of the project phase. We prepared a question bank of 1500 question items from 6 categories, which formed 150 stages totally. We also implemented a heuristic and feasible algorithm to fetch question items from database in a sophisticated manner. We finally developed a multi-platform mobile quiz game which features a captivating game mechanic and has an user-friendly interface.