**Undefined Parameter**

Blake Bartlett

Braeden Bodily

Joseph Lee

Melynda Lindhorst

# Executive Summary

Our goal is to create a quiz environment that is serious enough for college-level studying, but simplistic and intuitive enough to maintain a larger, more casual audience. This environment will be built as a website and as a mobile application to increase ease-of-use. Quiz questions will be generated and maintained by the users to ensure the most relevant information is kept at the forefront for consumption. Gameplay elements will be introduced to create incentive for returning users.

The focus for this application is primarily for college students but considered to be anyone with an affinity for quizzes, and may be adapted to any level of education. The entire success of this project rests in the hands of the users. They will create, moderate, and ultimately decide the fate of quiz questions. Power like that must be approached as a hierarchical tiered system: the more you contribute, the more influence and power you have. By giving this power to the users, it allows for more personalized quiz generation with relevant and up-to-date questions.

Having the users as such an integral part of the functionality has been proven to work well, for example Wikipedia. User-priority is something other quiz systems do not offer. It provides a dynamic functionality that allows the program to scale to suit any user’s needs. Also, when people build something together, it gives them a motive to continue to work. We hope to mimic that comradery and team work in our application.

# Background and Technical Requirements

There are a million quiz-related applications in the world. The necessity of our application lies in its user-oriented design. Other quiz applications can offer you a bulk of questions with varying degrees of quality. Sometimes you can modify your search to get slightly more specific results. The purpose of the applications which are currently available are not to help the user find questions to help them learn about a subject; instead it’s about memorizing facts, selling question databases, general knowledge, or competition between friends. While these are all fine qualities, they will not help anyone truly learn a subject.

To facilitate actual problem-solving and active learning, our application will provide multiple question formats. Essay, mathematical, true-false, multiple choice, mix-and-match—these are some of the different question formats that will be offered to users to create more complex and dynamic quizzes. Implementing these formats will require some research into natural language processing and image processing to decipher what the users’ input expresses.

Quiz generation will also require research into machine learning or, at the very least, some statistical analysis. A user will input different tags for a quiz generator to use to pick suitable questions for the quiz. To determine if a question can be added to a quiz, multiple characteristics of that question must be taken into account: user rating, tags, age of the question, number of quiz appearances, difficulty, and question-type. If quiz generation fails to assist or entertain a user, they can build their own quizzes using previously created questions.

Quiz generation also relies on whether you belong to a group or not. Different college and university courses can sign up to create quiz study-guides for tests. Questions from different classes at different schools with similar scopes can share quiz questions and are more likely to have their questions show up in randomly generated quizzes from similar courses.

In sharing those questions, competition is generated between the similar classes. This competitive spirit is perpetuated and encouraged throughout the application. Users can challenge friends, classmates, rival schools, or complete strangers. By challenging and winning against opponents, you gain titles and badges to denote prestige in addition to reward points. Challenges can be done live (competing against the opponent at the same time) or on a turn-by-turn basis which would allow both opponents to play together but not require them to be online simultaneously. Titles and badges will also be given out as uncompetitive challenges are met.

Participating in challenges, as well as general use of the application, will gradually produce statistics for a user and the user base. These statistics will be displayed on a user’s homepage as charts and graphs, comparing them to themselves and others. The feature offers a baseline for users who wish to improve their performance and view their progress.

If time permits, an avatar system will also be created to promote interactivity and a sense of ownership. Completing challenges will not only give users titles and badges, but it will also give them clothing and accessories for their avatar to display their status. Avatar art will be procured externally from a reliable source. Expanding on the avatar, an in-game store would also be built where additional accessories could be purchased with reward points, along with “level ups” or “competition boosts”.

To facilitate both web and mobile interfaces, we will be designing the system in a Model View Controller pattern. The back end and data (model) layer will be separated from the interface, and all communication from the front end to back end will have to pass through the controller. We will be looking at a framework such as drop wizard, which is designed to be friendly in both web and android platforms. To design the front end we will be researching into Angular JavaScript, or JQuery. If time permits we will design a mobile application to serve as an interface for mobile platforms, but if necessary it will be designed to be accessible through a browser on mobile devices.