Project Proposal: React Native Quiz App - Backend

Group Membership:

- Avi Kapadia
- Sanjit Pigili
- Zachary Knapp

Note that we will work constantly with the front-end team members of the QuizApp:

- Varun Patel
- Samarth Parameswar
- Sahana Krishnan
- Joshua Wu

Member Skill Sets

Member	**Time Commitment and Credits**	**Skills and Interests**
Sanjit Pingili	6-8 hours/week (2 credits)	Java, Python, HTML/CSS, C/C++, SQL, MongoDB
Avi Kapadia	6-8 hours/week (2 credits)	Java, Python, SQL, MongoDB, Postgres, MySQL, C/C++, HTML, CSS, JavaScript, React, AWS, Cloud
Zachary Knapp	4 hours/week (1 credit)	Java, Python, SQL, C

Project Description

The purpose of this quiz app is to aid students in studying the course.The app provides them with a tool to test their knowledge on various subjects, assess their understanding of course material, and improve their learning through self-assessment. One of the goals of this app is also to help teachers to easily create and administer quizzes and track student progress. Additionally, quiz apps can offer a fun and engaging way for students to learn and reinforce their knowledge. This app is made for all mobile devices with the ReactNative implementation, and during this semester we are starting from the

ground up in terms of app design. We will be working hand-in-hand with the frontend team to develop this app and will likely meet with them frequently.

Benefits Of This App

- Convenience: Quick and easy for students to use since most of them are on their phones already.
- Utilizes proven methods to incentivize users to open the app and work on their comprehension of different concepts
- Provides a targeted learning plan for students who are struggling with a certain concept by prioritizing certain content
    - Many times when students are stuck, they are not sure where they are lacking in knowledge - the ML model would provide them with questions that would be specifically catered to their skill set

Timeline and Goals

Our primary short term goal revolves around designing a database implementation for the React Native App. It is very possible that we will have multiple databases (eg. Firebase, Postgres) at the same time. We will need to meet heavily with the frontend team to design the overall architecture of the app. This is our primary target for the next few weeks before we decide on smaller details like Google authentication.

Milestone	**Date Due** (Hard deadlines are in **bold**)	**Status**
Project Plan Draft	**9/15/23**	In progress
Final Project Plan	**9/22/23**	In progress
Create new github repo and initial project files + continue onboarding	9/25/23	Not Started
Research optimal Database	**9/29/23**	Not Started
Decide Preliminary Design and Architecture with Frontend	10/6/23	Not Started
Have the first few features done	10/26/23	Not Started
Continued work - depends on previous progress - see requirements section	TBD	Not Started
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section		
Continued work - depends on previous progress - see requirements section	TBD	Not Started
Prepare for Demo + Final Touches	TBD	Not Started
Demo	TBD	Not Started
Project Cleanup and Final Documentation	TBD	Not Started
Final peer review and presentation	TBD	Not Started
Project Submission	TBD	Not Started

Other Goals:

- Implement a timer feature, so the user can see which questions take the user the most time
- Implement the database to the app, once it is done, work on user account login authentication with Google
- Implement a new flashcard screen where user can continue scrolling for new flashcards
- Develop an algorithm to track what the user had studied and display those questions on the quiz screen when the user chooses to take the quiz.
- Implement a spaced-repetition algorithm similar to what was done on the IOS Quiz App team for flashcards.
- Implement the quiz screen so users can take a quiz related to what they've studied
- ML Implementation
- TBD

Potential Problems and Pitfalls/Other Areas for Research

- Setting up the React Native application
    - Lot of members are new to React Native, so there will be a learning curve
    - However there is much experience with technologies
- Communication between frontend and backend could be a problem
    - Not to mention the frontend/backend bridge is often the most difficult part of an application
- Keeping a consistent / stable version between Frontend and Backend

    - Not all members are familiar with github so working together on the same project could be troublesome
    - Not to mention with the total size of the two teams being around 8 people
    - Will need to plan check up meetings and be diligent about this

Communication Resources

- Weekly meetings as necessary. We will standardize at 4 pm on Wednesday EST via Zoom or In-Person at the CULC / Midtown when necessary
- Scheduler: Lettuce Meet
- Google Drive: meeting notes, design documents
- Text Messages for daily chats