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CMSI 4071: Project Proposal

The **description** should provide a high-level overview of the project, compare it to any software programs already in existence (if applicable), list its most important features, and discuss the hardware and software it requires. The description should also indicate who the end user of your system would be, and, if relevant, how it would be maintained. A more detailed description of what you plan to accomplish will be included in Section 5 of the SDL, the Requirements Specification section, so only the top-level overview of the project should be included here.

The **justification** should explain why:

1. The project gives each team member the opportunity to extend what s/he has learned in other classes
2. The technical difficulty of the project is appropriate (not too easy, not too difficult)
3. One semester is a reasonable amount of time to develop the project
4. The team as a whole possesses the tools required to complete the project
5. The project is interesting to each teammate, classmates, and the instructor

Description:

The goal of our project is to demonstrate our knowledge of full stack mobile applications, as we deliver a well made integration of frontend and backend technologies. The project will emphasize creating a *complete* application, focusing on scalability and responsiveness (React-Native). At a high level overview, some other full stack applications include very popular choices such as Uber or Airbnb, as these applications accomplish similar ideas to our own full-stack features such as a clean user interface, real-time updates, and backend integrations to a database, providing scalability. With the React-Native portion of our application, we will try to take a step above these other applications as we learn and implement a quicker framework to implement real-time updates and be able to run our mobile applications on both iOS and Android devices. The use of React Native will also help us with scalability and speed as the code will no longer need to be rewritten or changed per each device, instead we run the code through an abstraction which will be able to translate it into native code for either iOS or Android devices. The application targets individuals looking for efficient, user-friendly mobile solutions, being widely available for professionals to casual users. Some key features from our application will include user authentication, real-time updates, and analytics analysis.

For our front end we will be using the React framework, specifically React-Native, or the mobile coded version of the React framework. The main reason for this is as mentioned, the cross-platform functionality and ease of access for cross-platform development.
For the back end we will most likely be using API calls along with Node.js to fully define our back end connections.
Along with this, we will be implementing a database for scalability and data storage, possibly choosing a back end as a service such as Firebase or MongoDB depending on the type of data that needs to be stored.

Some ideas for the future are switching from a database such as Firebase or MongoDB onto a cloud based service such as AWS, Google Cloud, or Azure.

Justification:

Opportunity to Extend Learning:
This project is appropriate as it allows each team member to learn, research, practice, and apply their skills at the same time. In this project we will learn to use the framework React-Native, applying it to the front end functionality we learned from the past. In the past, we have learned about front end and back end compatibility, but have not learned how to connect that to a database/host the project for future scalability. This project will encourage us to learn together, collaborate, and integrate different concepts we learned into one.

Appropriate Technical Difficulty:
The project is set at a level that challenges the team well enough without forcing us to learn an entirely new concept, instead we will build on older concepts. Our project involves building a complete full-stack application, which combines frontend, backend, database management, and deployment, making the technical tasks of having real-time data sync