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Project Proposal

Objective:

In today's saturated mobile application marketplace, there exist many mobile applications that utilize databases to enhance app functionality. But, I have yet to see an application that utilizes a real-time database to represent a mobile digital encyclopedia on a variety of topics rather than a specific one such as an application that was made to find the details of plants. What if there was a way to have encyclopedia categories stored onto a real-time database and with a button press, the one specific application on plants can now become one on household appliances or technology? This is the main objective that the "KnowMixer" App hopes to accomplish, contain multiple database "pages" on a variety of topics presented to the user in a fast and reliable fashion through an all-in-one front-end mobile application.

Solution Approach:

The main front-end application will be created utilizing an application development framework called Flutter, which was developed and is maintained by Google. The back-end/database portion of the "KnowMixer" application will be handled by another Google service, Firebase. These two services, Flutter and Firebase, will allow me to build the infrastructure for the application prototype and future content. The unique/key aspect of "KnowMixer" is in providing a seamless UI/UX for the user when navigating the applications several pages. In addition, there will be a manner of storing data pages containing encyclopedia data on the topic at hand. The prototype will be able to provide user authentication, page/app navigation and functionality, sample encyclopedia data stored in the database, and a manner of transferring the data to produce a final aesthetically pleasing result to the user through the flutter created "KnowMixer" application. The technology utilized in designing, implementing, and testing the application is the Android Studio IDE which contains many tools which assist in the design and implementation of the application, such as Android Virtual Device which is an Android Device Emulator for running/testing the application. In addition, it is expected to test the application on physical iOS and Android devices.

Expected Project Results:

The success criteria of this project will be having a working application prototype that produces a seamless user experience and functionality of accessing encyclopedia entries that the user desires. In doing so, there must first be an application design phase where the overall layout/design of the application must be set out. This preliminary design may later be tweaked, but it is a good starting point from which to design the functioning application. From there, since the Flutter framework allows for a fast turn-out rate with applications, a first draft of the page layout will be created utilizing the Flutter framework. Then, the main objective of accessing digital encyclopedias and displaying the information to the user must be designed and developed. This can be done by first designing the pages using Firebase and then extrapolating the necessary information onto the front-end "KnowMixer" Application. Future versions of this application will integrate AI and Machine Learning aspects through the camera detection of objects and then cross-referencing the image data with database entries to provide the user with information on the photographed object.

Technical Supervising Faculty:

My supervising professor in this project is Dr. Ubbo Visser. I've taken courses with him in the past and hope to use his guidance and suggestions in developing the main "KnowMixer" application and integrating the back-end and front-end portions.

In order to gain a better understanding on the subject matter of Firebase and Flutter, I've been taking a course on Udemy on constructing modern applications using Flutter and plan to integrate many of the learned techniques into the prototype.