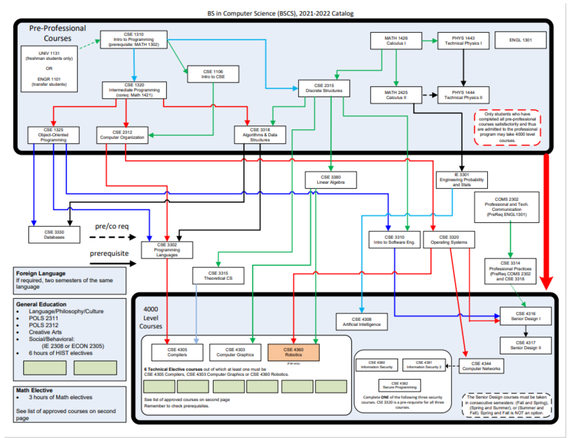
Interactive Degree Planner

Ijaz Mohamed Umar, Danielle Newville, Le Uyen Nguyen, Safi Ullah
CSE Senior Design

UNIVERSITY OF TEXAS ARLINGTON | COLLEGE OF ENGINEERING

Executive Summary

Mav Degree Planner is a web-based application aiming to assist UTA Computer Science and Engineering (CSE) students to create their degree planners that best fit their academic path. The website provides a user-friendly interface by taking advantage of the drag-and-drop functionality to simplify the degree planning process.



Background

The reason behind taking up this project is that the current UTA degree planner is not user friendly, nor does it give users an interactive environment to easily choose their classes. Users need to be able to easily choose classes to plan out their classes to finish their degree in a timely manner. The best way to do that is to eliminate any confusion while users plan it out. Therefore, we chose this project, since as students we also understand the need of a proper degree planner, which checks if prerequisites are met, let the user know if they're missing something, and overall, an easy User Interface to plan out the classes. The goal of this app is to aid to the needs of new students and give them a solid idea of how to plan out their four-year degree and give them the confidence as they would know that they are on track.

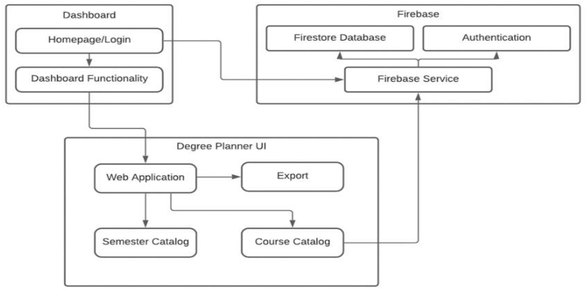
We implemented this project by using React Typescript for the frontend and Firebase for the backend. CSS was used alongside React to add styling to the web application.

Conceptual and Detailed Design Phase

The Degree Planner UI layer consists of Web application, Course catalog, Semester catalog, and Export subsystem. It is responsible for processing/displaying information related to degree planning tasks and interacting with the users.

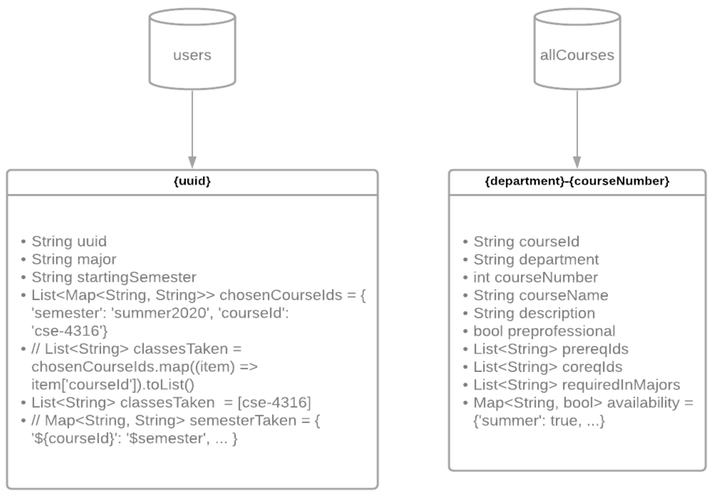
The Firebase Layer consists of two subsystems, Authentication and Firestore Database. It is responsible for authenticating the user and retrieving their information.

The dashboard layer will consist of a link to the Degree Planner, can view the flowchart of the chosen major, and will be able to sign in and sign out of the user account.



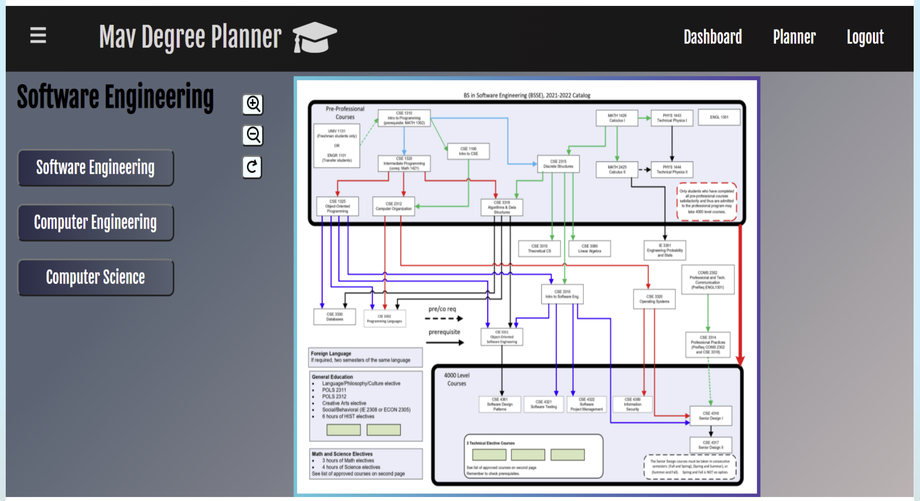
Backend Design Phase

- The Firestore Database Subsystem is responsible for retrieving user information, their chosen courses, and a list of all courses from the Firebase Firestore Database.
- The database is designed to hold user data, in order to map which classes the user must take to complete their degree plan.
- The courses have specific information that allows checking to be done to see if users are permitted to take a course or not.

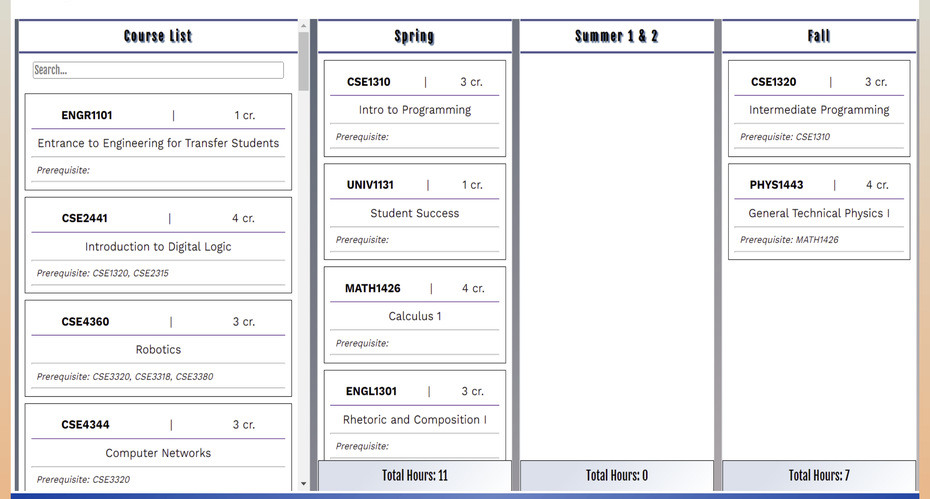


Prototype & Test

Dashboard Design



Degree Planner UI



Conclusions

Overall, this project gave us a good experience in building a full-stack web application. We were able to fulfill all the requirements that we initially planned on implementing, and we were able to have a fully functional application at the end of our sprint. Dr. Conly gave us tremendous support in making sure we meet all the requirements and we're thankful for the project as there was many things we learned as a team. Future work for this project are many but the most important ones are: degree planner support for other departments, semester availability of courses, and support a mobile version of the application.