Name: Sriram Srinivasan

myWSU ID: E334W844

Course: CS 598 (Senior Design I) – Fall 2021

Title: **Individual Work Package Statement**

My senior design team has done quite a bit of planning work and coordinating with the sponsors. Below is my part and what I (and Karishma – the other co backend developer) plan on doing the remainder of this semester and the next semester to get the backend development portion done. This statement only pertains to what I plan on doing and does not include other team members.

Work that needs to be performed:

- Draw Entity / Relationship diagrams and relational schemas based on the requirements given from the sponsors at Tabor College. This is part of the design phase and is done in tandem with the front-end development.
    - This requires meeting with Tabor's IT department to decide which parts need to be modified and which can be retained. The meetings will be done regularly throughout this / next semester to update them on the progress made.
- Start opening Firebase and importing all Tabor specific features into it. Implement appropriate security / network protocols (the specifics aren't known as of this moment). Provide authentication and then transfer ownership to Tabor College's IT department. Examples of features include:
    - Students' names, email addresses
    - Notifications – Jay Shop, programs, campus life, student success
    - Storage – hyperlinks and images
    - Authentication – students & faculty (2FA or TCP / some other secured authentication to access Tabor's resources)
    - Deployment – hosting it on Firebase & transferring it to Tabor College upon completion of the Senior Design II project
- Integrating the front-end with back-end team
    - Front-end team already has a wireframe installed.
    - As backend, I am responsible for adopting the correct security and network protocols to ensure that data sent from Tabor's servers and the students' / faculty's Wi-Fi / mobile data is encrypted.
    - The data flow from backend server to API to frontend must be handled seamlessly
- As an example, the front-end team already has a wireframe installed. For the backend, correspondingly, I need to make diagrams and have a design prototype that is similar to that of the frontend team. This ensures that everything is synchronized properly, and everyone is on the same page.

Resources needed to perform the work:

- Firebase
- Knowledge of GitHub and how repositories work
- Visual Studio Code and installing appropriate compilers to run the code
- Basic to intermediate level of JavaScript with React Native framework

Steps needed to perform the work:

See above in the first page under “Work that needs to be performed” section

Performance measured for effort:

- Getting on task with firebase and properly authenticating the database
- Selecting the correct network protocol, ensuring database is updated in real-time
- Dumping all the data into the firebase platform and ensuring it is read correctly
- A decent amount of getting the backend code done per week – decent is subjective here. What is decent for one person does not necessarily imply the same meaning for another.
- Signs of work that mean in trouble: not getting the code to work after a good-faith attempt is made, glitches in the data itself, not loading the data into firebase, etc.

Work product quality measured:

- Testing: making sure the backend code and data are synchronized together. No latencies in pulling data from the firebase and interacting with an API.
- Integration: whether the backend code can easily intertwine with the frontend code and not make the app run into technical difficulties
- Analysis: analyzing the code for errors, debugging and troubleshooting (as a team, individual, and co-worker working on the same portion of the project)
- Demonstration: making a mockup plan and prototype and then comparing it to the actual deliverable. Did it satisfy our satisfactions? If time is still left, I can communicate with the sponsor and Andy and ask for suggestions to make the final product even better

Hours taken to perform the work:

- Team meetings: 4 – 5 hours per month
- Sponsor meetings: 3 times per month
- Designing the E/R diagrams and schemas: 1 – 2 hours
- Coding: 2 months in the next semester
- Testing: several days
- Debugging / troubleshooting: 14 days
- Areas for improvement (assuming time is left at the end of next semester): 1 week
- Deploying to Tabor College: 5 days