Sarah George
Individual Capstone Assessment
CS 5001
Dr. Fred Annexstein

Senior Design in a way represents the culmination of years of hard work and determination. Now, during our final year of college, our team will utilize skills and knowledge that we have acquired over these past five years. This project is an opportunity to not only showcase professional and academic growth, but work on something in an area of interest. Having completed all of my co-op rotations in the area of mobile app development, creating a web application has constantly been an interest of mine and an area I seek to grow in technically. My team's senior design project fosters an environment in which web development skills can be learned and applied. Additionally, working on a web development project will allow me to explore its similarities and differences with mobile development, and if/how the two interact. Our project will be specifically focused in the area of health and nutrition and provide users an easy way to view, understand, and track their various nutrition levels. Additional features, such as allowing users to view how certain food and/or diets affect one's mental and emotional health, will also be incorporated. I am eager to gain a better understanding of the tools and technologies used in web development, while also being able to further grow existing technical and non-technical skills.

My academic curriculum has provided me with knowledge of various project management and programming concepts and tools that will be vital to our team's success and collaboration. Programming concepts learned during CS 2028C: Data Structures will become very beneficial when coding certain components of our project. Data Structures taught us how to distinguish between the different types of data structures and know when to implement them into your project. Similarly, CS 4071: Design and Analysis of Algorithms provided a foundational understanding of various computing algorithms, which will become a necessary implementation in our project as we will need to parse through nutritional data. In terms of the project management side of the project, EECE3093C: Software Engineering will help guide us in scheduling and planning various items in our project. Different organizational diagrams learned from the class will aid our team when determining the functionality of features and how certain workflows should behave. Overall, the various courses I have taken over the past five years of my college experience have helped to lay a firm foundation for my team's upcoming senior design project.

During my co-op experience at two different companies, I gained valuable skills and knowledge that will translate into designing and creating our team's senior design project. First, I worked at Atomic Robot as an App Developer Co-op. While working for Atomic Robot, I got experience in developing iOS apps and creating mobile apps for both iOS and Android using a framework called Flutter. Not only did I learn what the app development process looks like, but I gained real-world experience with agile project management, working within a sprint format, and

the overall mindset needed when working on an application that relies heavily on user interaction. In addition, I grew in my communication skills as meetings were often conducted with stakeholders present. The success of the project was largely determined by ensuring the stakeholders' needs and desires are fulfilled. My last two co-op rotations were spent working as a Software Developer at London Computer Systems on their mobile team. While at LCS, I worked on various bug fixes and small feature additions to the Android version of the rmAppSuitePro app. This experience allowed me to develop technical skills in an area I was not familiar with prior, but also gave me the opportunity to practice and strengthen existing skills. Communication and collaboration with my team members was essential to the completion of the tickets that were assigned to me as the framework and architecture of the app was rather complex. While web development and app development are not necessarily the same thing, there are many similarities between the two. I plan to utilize my app development experience in completing various tasks in the development of our web-based senior design project. My experience of working closely with others on a team will help me effectively collaborate with my classmates and contribute to the success of our senior design project.

I am particularly excited to work on our decided senior design project because of my own interests in the nutrition/healthcare space and my experience with mobile app development. Creating and developing an application in the healthcare space can not only be technically challenging, but can be widely beneficial to its users. The presence of web and mobile applications in today's software industry has given rise to many web-based medical applications for users, hospitals, and healthcare companies. Having experienced my own struggles with diet and nutrition, I understand the importance of having an easy to use and understandable resource for managing your own personal health needs. While various nutrition applications exist, there are gaps that exist within this space. My preliminary approach would be to research the various types of nutritional applications that exist, and see where there is a need. Such areas could include tracking mental health and learning how one's diet can affect their mood, understanding flavor profiles and their associated nutrition values, and more. Once a focus is determined, I would then start drafting out what the purpose of the application is, what proprietary features are needed, and how that can be achieved. As soon as foundational aspects of the project are defined, the drafting, design, and development process can begin.

In terms of measuring personal growth and success over the course of the year, I hope to be able to recognize a tangible difference in both my technical and non-technical skills. While I do not anticipate being able to build all of the ideas our team comes up with, I do expect for us to complete the basic functionality of our project and the features we deem the most important. In addition, a high level of quality should be seen in our work, displaying not only our technical skill set but our care and determination when completing tasks. Measuring one's level of contribution to a project can be difficult depending on the complexity of tasks to be completed. For the tasks I am able to complete, I will consider them a success if they are developed in a timely manner but also with careful execution. In the event that I am unable to finish a task because of its challenging nature or semester deadlines, any reasonable progress I have made in

development and research on a task can be considered a success. Once our team outlines a set of features that we are certain we want to implement, theoretically, our project can be said to be done once those are finished. Realistically, revision often happens in the development process, so our team may also be considered done if all necessary features are implemented but additional "nice to have" features or not. At the conclusion of my senior design experience, I hope to be able to look back on not only my individual work, but my team's efforts and see the hard work and dedication we put into our project in the various ways we were able to grow both technically and non-technically.