

Our senior design project is about developing a mobile application to track a user's fitness progress over time. Specifically, we will use the Flutter SDK to develop this application so that it will be available for multiple platforms. It is essential that the application is available/functional for users, regardless of the platform. The focus of the application is to allow users to easily enter their workout data and visualize the progress over a period of time. We also plan to incorporate artificial intelligence into our app by generating AI-recommended workout advice/plans for increasing muscle growth. The goal is to have a functional cross-platform application that is easy to navigate/use, has data visualization/analytics tools, a visually appealing GUI, and allows users to achieve their fitness goals.

My senior design project will be the most elaborate project I will have ever worked on for a school project. I think ENED during freshman year helped give a good foundation for how to collaborate with others to create a project. I remember learning the engineering process and how it takes multiple approaches/concepts to test before a solution can be reached. None of my CS classes have worked with Flutter, but CS3003 Programming Languages helped me become a better programmer overall because it fundamentally changed how I think about programming in general. Also, CS2028C Data Structures helped me learn how to start creating applications to manipulate data. I believe that CS4033 AI Principles and Applications will help with the creation of the AI-generated workout plans for the application.

For my first co-op, I worked as a software engineering intern for Zotec Partners. During my co-op, I helped create a new web application from the ground-up using Angular. Before working at Zotec, I had not previously worked with Angular and only had minimal knowledge about designing web applications from an elective in high school. For this internship, I had to learn how to work with the Angular framework and how to be a front-end developer. For this project, I expect a similar approach as I will have to apply my existing front-end development knowledge while I also learn how to work with the Flutter SDK for the first time. Another co-op experience that will aid me in this project is my co-op as a system validation intern at Medpace. While working in the system validation department, I learned the importance of fully testing code before it is deployed. I believe that I am a better software developer now because I have worked in system validation and understand all the scenarios to cover when testing new code.

I am excited to be working on this project for many reasons. I have never created a mobile application and would like to get an understanding of the intricacies involved in the process. Also, I would love the ability to physically show an application that I created to a potential employer in an interview. Additionally, I exercise regularly and would like to be able to track my progress and visualize it easily. Other fitness tracking apps exist, but they all suffer from being too expensive, unintuitive, lacking features, visually unappealing, or a combination of all the above. I even had the idea to create my own workout tracking app before, but did not pursue it as I did not think I could fully execute my idea alone.

My preliminary approach to designing this application is to write pseudocode for the different pages within the app, the functionality for each component, and the flow for how a user interacts with the app. For results, I expect to have a fully functional and cross-platform mobile application that allows users to easily track their workouts and visualize the progress over a period of time. Personally, I will evaluate myself as if this project is for my full-time employer. If my contributions are not helpful, then the employer will not need/want me, so I must have impactful contributions. I will know if I have completed the job when the application is functional,

easy to navigate, and visually appealing to the user. If I do not meet the above requirements, then I will know that I have not done a good job.