

Capstone Assessment

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For our senior design project, we decided to go with a fitness and diet recommender. This is a web-based application that will create a workout schedule for a person after they input their data and goals. This application can be very beneficial for people who don't have access to many resources or are not comfortable with training with other people. We plan to create a good User Interface, where workouts can be a quest-based journey. This project required both knowledge in Web development, Data Analysis and Machine Learning, which is an intersection that aligns with my professional interest. Since recommender systems have already been used in movies and music, I hope to utilize that for fitness and well-being.

Going through four years immersed in Computer Science, I got a chance to learn a variety of subjects that is crucial for my current skills and experience. The first important concept I learned was Object-Oriented Programming in Data Structure CS2028, the very foundation of current applications. This transformed my way of thinking, not only in programming, but also my approach on any problem - forming a goal and breaking it down to different steps/functions. From there, I continue on learning different tools and structure to formulate my solutions. I learned about graphs, hash table and different ways to tackle them in Discrete Structure CS2071 and Algorithm CS4071 class. I also learned classes that assist me in my interest in Data Science and Artificial Intelligence in Database Design and Development CS4092 and AI Principles and Applications CS4033. Stepping into the final year of my undergraduate experience, I have fully equipped and ready to challenge myself for this design project.

Initially, I was struggling with the path I should focus on from Computer Science. I was very interested in both Software Engineering and Data Science. Through my first Co-op with Viettel Solutions, a company in Vietnam, I was able to expand greatly on Machine Learning. I was a part of the AI team in their R&D department as a Data Scientist Intern. This was my first time taking a deep dive into Machine Learning to provide a solution for industrial problems. Moreover, I learned how to be a part of a group. They included me on every step of their project, from brainstorm ideas to developing a model and project pitch to clients. I was able to

communicate my suggestions, my difficulties, and contribute to part of the project. After that, I took on a completely different role as a student Co-op for Machine Learning in Bioinformatics for Cincinnati Children's Hospital Medical Center. I was mainly working directly under my supervisor on a research topic. With contrasting co-op experiences. I was on my own more and learned to pace myself through each difficult topic focus. With a wide experience working in different environment, I believe that I am flexible yet knowledgeable enough to handle any challenges thrown at me.

As a senior in Computer Science with an interest in Artificial Intelligence, I hope to be able to create a model similar to what Spotify and Netflix achieved for music and movies, aiming towards fitness. During my experience on college, I have found many of my friends who struggle to balance their schoolwork and their personal health. This project aligns with not only my personal interest but my professional interest as well. I would be able to create a model, hopefully from scratch, for the first time on my own. With this project, I hope to bring everyone the joy of working out, an experience that is personalized to preference.

My approach to this project would be first be dismantling it to smaller problems/functions, completing the backbone of the project first. Working with my team, we will each find the resources for each problem and slowly building each function. After that we will work on combining the functions together to complete the application. Since my focus is on Machine Learning and Artificial Intelligence, my focus on the project would be finishing the model and being able to analyze how well it performs. I will do some research for a benchmark on fitness recommender model and evaluate my model based on it. My goal is to be able to create a model that recommend a schedule with high satisfaction. For the overall project, as a team, I hope that we are able to have a running website and have the core functionalities complete (creating a workout schedule from data inputted).