

Learning Report

During our midpoint check-in, our team learned about the following capstone projects:

- CSE Enrollment Forecaster
- Nutradata
- Biocritical Reagents

There was a wide variety of applications being made between these projects which all focused on solving relevant issues their sponsor often faces. For example:

- The CSE Enrollment Forecast Capstone project aims to develop a web application that assists Computer Science students, at Lehigh University, in organizing their course schedules prior to registration throughout their undergraduate studies. This is to help mitigate the amount of schedule conflicts and prevent courses from reaching overcapacity, ultimately leading to a better undergraduate experience for users. In the first year, the focus was on creating an intuitive app equipped with user-friendly dashboard interface, which was able to allow students to efficiently plan their degree paths. Meanwhile, in the second year, a flowchart visualization tool was introduced to provide a clearer overview of the required courses for various programs, aiding both students and advisors. The current state of the project is working towards implementing a feature for students to add and drop advisors in their respective user interfaces.
- Nutradata is in the process of creating a user-friendly web application tailored for individuals leveraging supplements to enhance their well-being. Building upon the groundwork laid by a prior capstone team, the current team is diligently advancing the project. Their efforts this semester are dedicated to meeting with previous team members, acquainting themselves with the existing codebase and thoroughly reviewing the documentation handed down. At its current stage, the project features a functional front end that enables users to incorporate supplements they're consuming into their personal profiles. Furthermore, these supplement entries encompass vital details like ingredients.
- Biocritical Reagent group was facilitating the process of finding product lot information. Currently, the method used to insert & retrieve data from Merck's data lake is very time consuming because of their lack of an application or scalable database (such as a SQL DB). They are focusing on creating a web app that will allow for stakeholders to access data & relevant products from a more efficient database all through an easy to use UI. Their current goal is to streamline the mock data from the application to the database & vice versa.

The groups also leveraged different project management techniques. For example:

- CSE Enrollment team deals with many stakeholders such as school advisors, capstone advisors, & student users. They are efficient when communicating with all parties by leveraging frequent zoom meetings. These meetings allow for constant communication throughout the week with all stakeholders to ensure they are satisfying all requirements. This also helps them be held accountable for their deliverables as they are making constant checkpoints in their work. This stood out because as opposed to one-time weekly meetings with the sponsor as our team does,
- Biocritical Reagent group split up their team into frontend & backend. They rotated between roles for each sprint which allowed each person to get a similar impact on all parts of the project.
- Nutradata took an Agile approach for the project, which allowed with flexibility and adaptability to changes. It involves iterative development, frequent communication, and collaboration among team members. They also utilized a Kanban board that provided visual management of Nutradata's project tasks. It allows team members to visualize the flow of work, track progress, identify bottlenecks, and prioritize tasks accordingly.

Our team will implement some of the techniques & leverage our learnings from the various teams' presentations. For example:

- Although, we have been unable to implement traditional team roles given the structure of our project we plan on shifting over to a team structure similar to that of CSE Enrollment team in the near future. When the initial process of selecting a database platform on top of which to continue our development we plan to adopt a more usual role and hierarchy structure. Looking over other team's structures, it became apparent that one similar to that of the enrollment forecaster team with defined backend, database, frontend, and project manager roles in order to streamline future progress. While the structure of the other Merck team was a strong consideration, it would be

difficult to leverage the benefits of rotating team roles for the purpose of developing the hierarchy management application. Instead it was decided that static positions will better serve our team in the future by allowing us greater familiarity with our respective responsibilities and technologies. With this level of individual expertise we can efficiently carry on our tasks while collaborating to integrate our work into a cohesive application.