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Individual Capstone Assessment

This capstone project, from my point of view, is all about putting all the skills that I have acquired both from the classroom and my co-op rotations into one project that accurately represents these skills. It also provides a unique opportunity to set my own goals and expectations, whereas with class and co-op work there is already preset goals and expectations for what the product of my work will be. Professors have already set the criteria for the outcome of a coding assignment and management at work has already done the heavy lifting of putting an idea forward that has a specific look, functionality, and overall outcome to it, and this project will allow me to do all of that for myself. Simply put, I am essentially going to be able to be my own boss and put in all the work that management would usually do. Being able to do that will offer an experience that I haven’t really had the chance to be apart of yet. Then on the technical side of things, I have quite a bit of experience in this area, enhancing and maintaining this kind of project, but I will now have the chance to build the pieces from scratch rather than adding to one that already exists.

The first course that comes to mind when I think of what helped prepare me was Data Structures (CS2028C), because I felt like that was the first class that had information that directly related to how I would be writing code when I started my first co-op rotation. Prior to that class, I felt like the classes were focused on getting the basics across and learning the ropes, but with data structures, I learned how to code would typically be written with object-oriented programming. The next class was Software Engineering (EECE3090C), because it wasn’t only focused on teaching aspects of code, but why you make certain choices when designing how you are going to develop your program. It involved a lot of critical thinking and forcing me to plan the exact approach and how I’m going to structure my data prior to starting to write code, which leads to a more efficient development process. I was also exposed to numerous software design patter, like the Factory method, which ended up being how a lot of classes were structured on co-op. Lastly, another big aspect of software engineering was learning how to properly write unit tests and the different strategies that are available to guarantee the most effective tests, which in all software, but especially enterprise software, are a crucial part of both the development and maintenance processes.

Onto my co-op experience, I worked all five of my co-op rotations for Siemens Digital Industries Software as a software developer. I worked primarily in web development both front-end and back-end, so I feel that I have a good grasp on all areas of the full stack process. For the front-end development, I worked on the development and enhancement of file viewers built into our web app in JavaScript. I also worked on a project where I enhanced the UX of part of the app, and another project was building a new PDF viewer from scratch that would be embedded into other applications where I designed the entire UI and UX of it. For the backend development, I worked primarily on the APIs in .NET and C# that were servicing data to the front-end. That work included enhancements of the APIs to add new data, as well as the implementation a brand-new API. I also worked in data storage and querying with working on Elasticsearch indices and how the data was being stored and retrieved. I think the backend experience will apply directly to setting up our backend and service URLs, and the Elasticsearch experience will help in setting up how we will store our data and query it, and lastly, the front-end experience will help in the implementation of how we will display our data on the client and develop a UI and UX that will be intuitive and pleasing to users.

I’m excited to work on this project because I think it is really going to compliment my skills and experience well, and it gives me the opportunity to build everything from scratch rather than enhancing existing infrastructure. So, while I have full stack experience, I have never built something where it will all be developed from scratch, and my team and I have full reign to implement all aspects how we see fit. I am also excited to build something with a practical use in school, because we typically code to accomplish some task that is assigned to learn something, and while this will be a good learning experience, it will also have a use when it is done, not just for a grade. As a team, I think we will be able to evaluate each other based on both the quality and quantity of the work that we each put into the project. I have full confidence in my team based on our collective experiences that each of us will make equal contributions and develop a solid solution. Also, because of how much experience we each have in web development, we all know what good work looks like and will be able to know when we have a quality final solution.

To start the development, my initial approach to design a solution would be to layout the groundwork prior to writing any code. We need to decide what our inputs and outputs will be, what the data will look like, how we will store it, how we will search our data. We need to start by answering these questions and any others that we can come up with like them that will help get an idea of what our end goal is because I don’t think you can start building something without having an idea of how it is going to operate and what it will look like in the end. My expected results in the simplest terms would be to have a functioning web application that meets all the criteria that we set for it during planning and has full implementations of each of the functionality aspects that way users have a smooth and intuitive experience when using it. And while we just have the base thesis for what we want to build, I think it will be an accomplishment to be able to expand on the idea as we go and see what other aspects that we can add along the way that will enhance the experience and add functionality that will make it that much better. While I think it is difficult now to say how we will know when we are done because we don’t have the plan in place, the best way I can put it is when we have cleared our list of user stories and feel like we have bug free implementations of each of our functionality pieces. If we have accomplished what we set out to do and it is an overall smooth experience while using the application, I think we will be able to say we have done a good job and can be proud of the solution that we built.