Shruti Asolkar – Individual Capstone Assessment

The senior design project I am working on is all about building an application that helps users with maintaining their finances and educates them about simple finance and investment tips. The app will also be able to help users see where their money is being spent, how many subscriptions they are paying for, and which stocks are profitable investments at any point of time. I think that this project is a great way for me to be able to use my knowledge of backend development and API development to create an app that is useful and educational. I think it is also great exposure for me as I intend on working with new techniques in AI/ML to work on real-time stock visualizations and finance/investment recommendations for the users. I think that my co-op experiences dealing with full-stack web applications in Java, Spring, etc., gave me a good starting point for this project. I am aiming to apply these skills as well as learn new technical skills through this project.

My academic experiences have included courses like Data Structures and Algorithms (CS2028C), Discrete Structures (CS2071), Python Programming (CS2021), Intro to Computer Systems (CS2011), Software Engineering (EECE3093C), Operating Systems (EECE4029), and Design and Analysis of Algorithms (CS4071). These courses have helped me lay the foundation of my knowledge within Computer Science. The topics from these courses have helped me better understand concepts like Computer Architecture, Discrete Math, different algorithms and their efficiencies, etc. These courses also helped me brush up and develop my coding skills which ultimately helped me write better, more readable code. This will definitely help during this project since I intend to write robust and sustainable code. I have also taken specialized courses like User Interfaces – 1 (CS5167), Advanced Software Engineering (CS5130), Artificial Intelligence (CS4033), and Intro to Cloud Computing (CS5165) which have helped me learn about specializations and trending topics within Computer Science. Skills that I learned in these courses also helped me do better work in the industry while on co-op. I intend to use some of the knowledge of AI and Cloud Computing while building and deploying this project.

My co-op experiences have included 4 industry positions and 1 EEP. My two co-op rotations at FedEx Ground taught me a lot about teamwork and work ethics. I worked with a team of industrial engineers and helped them automate some of their reports using VBA and SQL. I did not do a lot of complex coding, but I learned a lot about communication skills, schedule/project planning, and how to pitch my work. I was also responsible for teaching the other engineers about how the new reports functioned, so I learned about how to present my work properly as well. My other two industry rotations at Dell Technologies taught me many technical skills. I worked with two different teams on a couple of web applications. These were full-stack applications, so I worked with languages like Java, Python, JavaScript, and frameworks like Angular, Vue, Spring, etc. I also worked with PostgreSQL. I learned about many tools like Maven, Git, Jira, and Jenkins. My experience with all these languages and tools will help me create solutions during my project which will be better suited for the purpose and nature of the project. These experiences taught me about multi-tasking, planning, problem-solving, and efficient execution which I intend to use in this project. Working with multiple tools has made me more resilient while learning different things, which is a key skill I need for this project since it involves new techniques as well.

My biggest motivation for this project comes from a genuine interest in creating solutions for users’ everyday problems and an interest in learning more about finance. This project is my way of creating a solution for more people like me who are young, earning some of their first paychecks and want to use their money in a better way. My approach to building the application will be to create mockups of the UI, doing research for the APIs and other techniques for all the features and then ensuring a seamless connection between the frontend and backend. This will ensure that the application is built in a way that is sustainable which will help with maintenance. The new techniques I want to work on is AI for creating a chatbot-like interface for quick finance tips, and machine learning for stock visualizations.

I want the final product to be a functioning application that allows users to easily track their expenses, manage their budgets, and receive investment suggestions. I plan to do repeated feedback sessions with users, peers and advisors for the UI mockups, individual features, and eventually the entire application to gauge my progress. I will also want to have in-depth team discussions with my project team and gather feedback from there too. Ultimately, I want the application to be able to teach users about finance and make budgeting and investing fun and easy for them. My contributions will mainly be within API development and some of the AI/ML capabilities involving smart recommendations. I will be self-evaluating these contributions by gathering feedback from my team about whether they can read and understand my code, how my contributions align with theirs, and how the user interface for my features is. I will know I have done a good job by making sure user feedback is addressed promptly so that the application can be most useful.