Chris Jantzen

Individual Capstone Assessment

ULang will be a web application to aid in learning a foreign language. The goal of this application is to be a place to take structured and organized notes, practice in specific areas of the language you are weakest in and be able to practice the grammar learned verbally. For me this app will be about combining all of the things I've most enjoyed learning about in class with all of the things I loved doing on Co-op or in my free time. After graduation, I plan to begin a career in web development, hopefully building full-stack web applications or the front-end side of them. I'm also very interested in working in the cloud so this app will give me a chance to combine all of those interests. This will also give me a practice on utilizing new libraries and APIs and properly reading and learning from documentation and implementing solutions from that.

One of the key features of any web application is the user interface and user experience. All of the members of my group have taken or are currently taking UC's CS 5167 - User Interface I course. This course will give us guidelines and experience with making sure they layout is accessible to anyone and easy to understand while still looking clean and modern. Additionally, the CS 5165 - Cloud Computing course will help us to utilize the provided services of one of the major cloud provider's platforms for user authentication and database hosting while keeping expenses to a minimum. An additional key class for this project has been the CS 4092 - Database Design course. This course taught us the fundamentals of designing the structure of a database to handle relations between tables and how to optimally access the data we need. Though we have not definitively decided which database paradigm we plan to use yet, these skills are useful for any of the styles we will be choosing from.

This project fits very closely with the things I became interested in because of my rotations with Siemens Digital Industries Software. I worked on a team that developed cloud native microservices on AWS using some of the latest web technologies. In the two most recent ones, my main tasks included building UI components with HTML5 native web components and utilizing GraphQL along with ExpressJS for constructing the server-side REST API requests to get required info from our microservices. Because of this, my web design skills have grown greatly, and it has become one of my favorite things to do in software development. I will likely be taking the lead role in the front-end development portion of the project for my team and these skills will be heavily used. Another very important area I have been exposed to through my Co-op rotations has been technical demos. Because we utilized an Agile development strategy that included both daily scrums and biweekly sprint reviews with our users, I was able to regularly present my work and explain how to use everything via live demos.

My motivation for this project came from my learning French in my free time. I've been using free online services to learn French for the past five months or so and there were a lot of tools that I felt were missing and made it harder for me to retain information as I was going through the lessons. I wanted a place to store the verb conjugations for the new words that I was learning, among other things, and be able to go back and reference them and practice them in a way that I felt would help me retain that best that the platforms I was using didn't provide. I wanted to take on this project to both give myself a platform to improve my abilities but to help anyone else who felt like their journey to learning a foreign language wasn't going as well as they'd like. This interest has driven me to learning a lot about new technologies in preparation for starting development on the project over the last few weeks. My view for the application is to provide a platform for users to study what is giving them the most trouble and then be able to apply that so they can be confident in their understanding of the foundations of a language.

Specifically, I want to provide the ability to learn many languages at the same time if the user wants to. For each language I want to be able to have custom lists of words that have been created and defined by the user to make, if that word is a verb, they should also have conjugations for each usage tense, as well as any additional notes they wish to have. I plan for there to be flashcards for studying difficult vocabulary words and a similar idea that checks for getting the spelling correct. Once these are completed for, at least, most languages, and the workflows go nicely, I will consider at least the base portion of the app completed. There are other things that I would really like to have in the app too like the ability to speak with the app and have it grade your speech for inflection and correctness and/or a chat bot that would allow you to speak with an bot. I will be focusing my self-evaluation on how well the components I design work primarily and how appealing they are visually secondarily. I will also try to focus on the maintainability of the code I write because I think that's just as important of a skill to develop as the rest going into a professional position once this project is complete.