

Chris Messmer

## Individual Capstone Assessment

Our senior design project ULang will be a teaching aid for those learning a new language. ULang will be a cloud-based web application to aid in note taking, practicing, and expanding the user's knowledge of their chosen language. For me this project is an opportunity to depart from much of the work I have done in classes and on co-op, which has mostly been native applications in C based languages. This project will give me the opportunity to gain experience in web development, and build out my repertoire of areas / languages worked in. ULang also presents the opportunity to delve into the interesting challenge of natural language computation in the form of practicing pronunciations and inflections – which automated natural language has a notoriously hard time with.

I am going into this project without much experience with any of its technical aspects – full stack web development, natural language processing, JS, etc. – but after my experience over the past few years I am confident that this simply makes this project an opportunity through which I can learn and grow. I believe the skill I have gained through the CS curriculum that will help me the most in this project is the ability to teach myself, to go out and find instruction and answers on my own when I have questions. I believe this skill will be imperative when confronting the challenges of this project that I have little experience in. Generally, the part of my education I will apply most in this project is the way of thinking – that I can learn these new concepts and use them, and that the knowledge is out there if you look hard enough. Along with this there are a couple courses that will apply directly to ULang. CS 5167 – User Interface I will of course applicable when creating the application UI to make it usable and approachable, and CS 4092 – Database Design will be applied when creating the database for ULang.

My co-op experience at Siemens DISW has also contributed to this “can-do attitude” by being another experience where I was faced with open-ended challenges, which were up to me to understand and take on. I believe the soft skills I developed on co-op, communicating and collaborating with co-workers, will also be helpful during this project. Beyond soft skills, the

technical skills I have worked on by consistently coding, having my work reviewed, and improving on my everyday practices will have a great affect on the quality of work that I can put into this project. Though most of my experience on co-op has been on native applications in C++/C#, I am sure the concepts and practices I have picked up along the way will be beneficial.

I am excited be a part of this project because it is filled with areas that I have never worked with before, and I see it as a way to broaden my knowledge and gain some experience. As I have said a few times in this assignment, I haven't really worked with a lot of the things involved in this project and I am looking forward to learning from my team members with more experience in web development. I am also excited to tackle natural language processing, as none of us have really touched on it before. I'm not certain if it will be as simple as querying existing apis, or implementing a library, or if it will be something much more intensive – but I'm excited to give it a try. Personally, I don't have many side projects I have completed in the past, time constraints and motivation have killed most that I have started, so going in to this project I am looking forward to following through and coming out with a tangible result of my work. I am looking forward to having a good representation of my skills and the work I am capable of.

Our approach to designing ULang will of course start with research. We will need to analyze some of the existing solutions for practicing foreign languages – see their strengths and weaknesses and how we might avoid any pitfalls in their design. We will further need to research the best methods to create the application, narrowing down the preferred languages, frameworks, design patterns, and hosting services on which to create the backend of the application. We will also need to research our preferred way ( read beginner friendly) to create a user-friendly front end for the application. On top of these we will create our novel functionalities of the application – flash cards, verb conjugation tables, and natural language processing – all of which will require yet more research into methods and technologies needed. Ideally by the end of this year we will have a functional webapp that can be used to practice learning a foreign language through the features I mention above, this webapp will be functional, stable, and easy to use. I will base my self-evaluation on quality of my contributions, and the completeness of the work allotted to me, as decided by our team. I will know I have

done a good job if my portion of the work is comparable to my teammates, and I have completed that work to specification, to the best of my ability.