Senior Design Spring Self Assessment

What was your individual contribution to this project? Did you apply and build upon the skills identified in your initial assessment from last Fall? What did you do and how did you do it? What did you learn and what competencies did you build? What were your successes, what were you obstacles?

My individual contribution to this project was the entire project because my project was a solo project. In my initial assessment from last Fall, I identified the skill I wanted to improve was my understanding of lower-level computing and I definitely built upon that through this project in entirety. I believe that by simulating low level computing through a high-level language I was able to build a bridge into the understanding of lower-level computing that will help me cross more gracefully into the study of it. I also believe that after I move my senior design project to a web application, I will be able to help other students benefit from my project as well. My skills with python have been extremely helpful because it sped up my development speed significantly. I also believe that my skills in UI development have increased significantly due to the fact that this was my second time building a fully fledged UI for something and I was able to expand upon my knowledge since the fundamentals already existed.

I created my UI through PyQt5 and wrote all my supporting libraries with Python 3. I took a mostly functional approach to my library design because I believed that it would be easiest for students to look at and understand. The only object that I used was the object representing the machine state that was passed between my UI and the simulator libraries because I believed in that particular scenario it would be most easily understood by students as an object. One particular competency that I built that I didn't mention in the first paragraph was library design. Even though looking back, I think that there are some organizational things that I could have improved upon I believe that my library architecture was solid and it was my first time architecting a library system for a large project. The UI library was my highest level library and underneath it were intermediary libraries for the Assembler and Simulator, those intermediary

libraries acted as connecting libraries between the UI and the backbone libraries for the assembler, simulator, and validator libraries. Finally, there was a low-level utility library that was used by every single previous library mentioned, this is a design choice that I'm still not sure is okay or not. My successes were that I was able to get all of my required deliverables done as a solo project in two over 18 credit hour semesters with 24 hour work weeks while being the event coordinator for a club that I founded. I'm really proud that I managed to get this project done well despite all of this. My obstacles were mainly time because I typically need a large block of time to get coding done, its difficult to work on projects in small bursts. Another large obstacle was how long it took me to figure out how .obj files were created because I had to reverse engineer it from the proprietary C++ solution. This took a lot of perseverance because it was difficult to estimate how long this was going to take.

What did your group accomplish? What did you learn about group work? What aspects of teamwork were successful and what aspects of teamwork were not successful? How did your efforts on the project compare to that of your teammates? Do any team members deserve special recognition?

I will start off by saying that I'm a solo project so this series of questions doesn't apply much to me, instead I will talk about what I learned about accountability dynamics throughout my project. For the LC-3 Assembly language, I accomplished a functional assembler, a functional Instruction Set Architecture behavioral level simulator, and a functional UI with a text editor that hosts all of the software components. I learned about accountability through my project by observing how setting weekly meetings with my advisor drove me to make progress each week. I realized that the structure of accountability in a project enforces organization and reflection by encouraging the setting and accomplishment of particular goals and landmarks so that progress can be reported in an easily communicated way.

I don’t think that there are particular downsides to accountability except that if you only ever are able to complete projects in which you are accountable to another person then you won’t learn to be accountable to yourself. My efforts on this project were extremely high as I persevered to accomplish all of the pieces of my project by the time of the expo. This was in part because I actually want to continue developing this project to help students learn assembly. I think I deserve recognition for putting in the amount of effort it took to get this project done, I’m proud of that effort and will carry it on to my future developments on the project.