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Cumulative Reflection

I began my adventure in Iowa State's Computer Engineering degree program in Fall 2019. Having only had experience with Python, my introduction to programming course had me learn to write programs in C, which could be a much more labor-intensive process than what I was used to. By my second semester, my object-oriented programming course introduced me to Java as well. That semester, I also worked in a group to create a mobile app using Flutter (which required us to program in Dart).

Learning 3 new programming languages in just two semesters was quite difficult, so I began to program out of class to get better at the languages. I fooled around with image manipulation programs using C, figuring out how to export to different file formats and change the image in various ways. Later, when I became an Esports Manager as a member of the Gaming and Esports Club at Iowa State, I wrote a program in Java to automatically generate balanced teams when I held tryouts.

I wasn't just interested in leadership roles in the Gaming and Esports Club; I also ran for Student Government and was elected Engineering Senator in Spring 2021. This passion for leadership and Student Government was driven by a series of courses I was taking, from a Constitutional Law Honors Seminar to a Criminal Justice course.

My leadership skills also came to the forefront when I took Computer Science 309 (Software Development Practices) where I worked in a group to develop an Android app for the entire semester. During the course, we consistently encountered issues integrating our work for

project milestones. In many cases, the back end didn't meet the front end as we expected it to, and we were left with a broken mess. To solve this issue, I took the initiative and sat my teammates down for a meeting where we outlined an API in detail for our project. At the end of the semester, the teammates who did their work successfully met at the API, and those who didn't had no excuses for not meeting their teammates at the part of the API they were assigned.

After the end of my third year, I moved to Minneapolis for an internship at Open Systems International. At my internship, I further developed my C and Python programming skills by working on custom applications for power generation facilities worldwide. I also gained invaluable experience relevant to a software development environment such as using Git in a professional atmosphere, performing code reviews, and creating documentation.

For my internship project over the summer, I was tasked with creating an incredibly fast C program that would be used as a product on customer systems. Initially, my project was incredibly slow, taking almost a minute for large import files. However, as I spent more time learning how to optimize C programming and how to use data structures, the time my program took to finish began to shrink. By the end of the Summer, the same large import file took less than 5 thousandths of a second to finish, and the project had several additional features.

It's hard to believe that my undergraduate degree is almost over, but it is impressive to think about all the knowledge I've gained over these past few years. I've worked on so many projects, I often forget about some of them when looking back. Although I don't plan to leave quite yet, and I intend to stay another year for my master's degree, I know I will miss Iowa State when I depart.

