

Reflective Essay

Initially, I expected to do very well in this class as I enjoy the way computer science intersects with mathematics. Since most of the material relies heavily on mathematical thinking when creating simulations, I knew I would definitely have no problem in staying engaged with the material. While I expected to enjoy the class, I also expected the class to be quite difficult and have a learning curve compared to other computer science courses. Before Simulations, I did not feel very confident in statistics as I have always been more invested in the realm of calculus. However, since I knew the class was being taught by a computer science professor, that fact helped to ease my nerves since I knew most of the math would probably be simplified for our purposes in the class. Overall, I expected the class to be an exciting, yet challenging endeavor that would potentially give me many late nights, but in the end would provide me useful tools and knowledge that I would consider taking with me into the future as a computer science student.

One assignment that provided the most difficulty for me was the FastPass+ M/M/1 queue. For me, I struggled early on to understand how the key components of the discrete event time advance simulation would all come together and provide the results that I needed. For example, understanding how the FEL and how it would change throughout the state of the simulation required me to do a lot of tracing through the outputs of simulations as well as having to draw numerous diagrams on the whiteboard. Once I had seen the actual queue in action, I could then see the state of the FEL and how the heap properties were being enforced throughout the course of the simulation. I also needed to perform a lot of observation of outputs to figure out different cases involved with the departures out of the queue. Like we said in class, a lot of the problems that occur with DETA happen when we have to figure out the algorithm we use to process events. I found that collaboration with my teammates helped a lot in narrowing in on the important cases involved in processing departures. Often times, all it took was someone's different perspective on the scenario to identify a key edge case or scenario that we had not previously provided any implementation to handle within the simulation.

Over the course of the class, I interacted with Griffin quite a lot to discuss deliverable questions or other material in class. We also interacted quite a bit in Networks too since we were in the same group for that class along with Simulations. Interestingly, we discovered that I was more engaged in Simulations while Griffin was more engaged in the Networks material, so I felt like there were times when I needed to talk to Griffin and keep him motivated to push forward and improve his grade in Simulations. For example, on the day of the Sprint 3 quiz Griffin did not feel very confident with the sprint material and although we had studied some material prior to taking the quiz that day, he still did not feel like he was understanding the material up to that point in the class. When he saw that he had made some silly mistakes on the quiz that prevented him from getting full credit for the quiz, he seemed almost defeated but I talked it out with him and ever since then he has felt more positive about his grade in the class. We have consistently met up and had several late nights of coding and problem-solving to make sure we understand course material since then and we feel very confident that we will come out of the class with an A. I learned that sometimes the best way to test my own understanding of course material was to explain my reasoning to Griffin and other students and see how well they could understand me and use that information to help them overcome obstacles.

In the future, I can see myself doing much better in group-oriented environments that rely heavily on teamwork, good communication, and timeliness. Over the course of Simulations, my group felt the need to interact very frequently to make sure we all understood course material prior to quiz day, and sometimes we would even meet up directly after the release of new sprint material to get a head start on content before it was introduced in class. The flexibility of the scrum methodology allowed my group to do a good job of delegating our time even when we had a very

busy schedule with a major programming project in Dr. Elva's Software Engineering course and major assignments in other classes like Calculus. We also did a very good job at adapting over the course of the class to make sure we could make adjustments and stay on task. Sometimes we found ourselves leaving major assignments off until the last weekend before the quiz but that behavior quickly changed when we discussed our thoughts about the sprint and possible improvements we could make in the future after taking the quiz. After Rollins, I can see myself using my strong communication, adaptability, and team-oriented skills in order to be successful in a serious tech environment where deadlines are set in stone and time is always limited. With the right skills, I should be able to handle the pressures of time constraints and do a good job of making a schedule that tackles all of the major objectives of a project as early as possible and be able to make any necessary adaptations for future projects.

The current pandemic has caused a lot of headaches and anxiety for people, but what I've learned is that in order to succeed during circumstances out of my control, I must adapt or else face the consequences if I stick to my old routine. My group did a great job of meeting up over WebEx or texting ideas over the course of the semester. However, we also took advantage of our time on campus, and although two of us in the group are off-campus students, we still managed to meet up in person sometimes to catch up on serious assignments that required a good degree of communication and discussion like the Monte Carlo Simulations or FastPass+ M/M/1 queue. Sometimes being in person provided us a sense of motivation and energy that would fuel our brainstorming and problem-solving skills, and if either of us felt stuck, it was every easy to flip the switch and right any wrongs. An issue I came across was trying to balance what I was doing in Simulations with coursework in other classes, specifically Software Engineering. I felt as if the course load and schedule were designed to be used in a typical semester and did not change to adapt to the current circumstances occurring in our country. Constantly, I felt as if I was experiencing a time crunch in that class that made me worried about my productivity in other classes such as Simulations. Luckily, since my Simulations group is the same for my project group in Software Engineering, we did a fantastic job at delegating tasks for that project to lighten the load on individuals in the group who were having rough weeks or a lot of major assignments due for other classes in a certain week. Our chemistry as a team helped to lessen the anxieties involved with heavy course loads and kept me in a comfortable position in Simulations.

My typical answer to the in-person vs remote learning problem has always been to prefer in-person learning over remote learning due to the inherent ability of in-person communication being able to spark meaningful discussions and bright ideas. However, due to the circumstances it makes sense to make education at Rollins widely accessible to all students and to ensure a quality education for everyone so remote learning must be an option. The only struggle I often experience with remote learning is a disengagement with course material. To understand concepts, one must provide meaning to those concepts and have a professor that will facilitate that process but sometimes the remote environment just feels lifeless and unable to help students stay engaged with a course. Personally, I don't see any positives of remote learning that particularly stand out and could be experimented in an in-person learning environment. For the most part, I see remote learning as a temporary adaptation to the current circumstances happening in the country, and once that situation is largely taken care of, I don't see any reason why we should continue remote learning in the future as a norm. Obviously sometimes the technology can be very wonky, but for the most part, remote learning just does not provide the same memorable learning experience that an in-person class provides, and it does not seem right to be in a community like Rollins and be without in-person interaction. Ultimately, I'm hoping that learning will go back to normal in the near future.

Over the course of this class, I have become more aware that I learn best with a hybrid model of independent study and group discussion. I found that independent study is very easy to do when time is available to me on any given day, and that I can spend that time productively. Early on

in a sprint, I would take time to just read over all sprint material and outside resources before attempting any deliverable problems or coding assignments. Then, if my group members happened to be struggling with any concepts, I knew that provided me an opportunity to give my own input into a discussion and perhaps teach a difficult concept in a much simpler way to someone. I discovered that productive independent study allowed me to be knowledgeable enough to where I could understand the key concepts and their relationships and then describe that information in my own words to someone and have them understand it if they were struggling with it previously. To me, that process is the ultimate assessment one can make about one's own learning process. If one can master the material and then teach it to someone who is either new to the material or struggling with it, it's very easy to conclude that the material is well understood. I also found independent study more preferable in cases where I often felt slower or less prepared in group discussions. By assessing group discussions, I know just what steps I need to take in my own independent study to either catch up or refine my learning process to ensure I understand new material or refine my understanding of older material. In group discussions, I also found that mini debates can be useful in helping the whole group understand an important concept. If an important question is proposed but teammates seem divided on the correct answer, it's best to talk through it and come to a clear consensus because sometimes when we take the time to do a deep dive on a concept, we uncover things we did not see previously. Luckily, Griffin and I debate topics very frequently, whether related to Simulations or not, so that was not a problem for our group. Ultimately, I found that I was most productive when I developed a healthy balance of independent study that allowed for new discovery and refinements and group discussion, which provided the opportunity to propose questions and challenge opinions on certain concepts. Furthermore, I found that if one can successfully teach a topic, one probably has a clear understanding of the topic and that made me feel very confident about this course as I felt like I was able to successfully help my teammates understand challenging concepts over the course of the class.