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ISAT 252

Spring 2020 Final Reflection

I’m very glad I took ISAT 252, despite not being in the major. Since I am a math major, I don’t get a lot of opportunity to learn how to code. I figured that I would make good use of some free elective space that I had to dive in to this field a little bit more. Looking back, I wish I would have pursued a minor and been a little more strategic about things, but I’m glad I got what I did out of it. I expected to fine tune some coding skills I had from a previous class in Matlab. I wanted to learn more languages, and get more comfortable with programming in general. I had originally learned programming by just attempting it and correcting myself along the way, because that is how I learn best. So, I kind of expected this class to set me up a little bit better. I wanted to know the basics that I possibly missed, and the fundamentals that I would not be able to retain on my own.

I simply wanted to know how to program better. I have dabbled in the basics of a few languages, so I made it a goal to get more familiar with them, especially with Python because it has been my favorite to code in so far. My bigger goal was to get familiar to Javascript, since it was the one language I heard a lot about, seemed intimating, and the one that is very widely used.

I became kind of addicted to uploading things on GitHub. I found it really satisfying using the command line to code and for Git. I did it for fun sometimes when I was bored. I also wrote some “GitHub guides” that I published on Github for myself and for others to refer to. During quarantine specifically, I set goals for myself to try new things with programming and to watch more video tutorials. I had an interview with Revature for a software engineering job, and they sent me videos on Javascript that I watched and took notes on. I spent a lot of my time coding this semester. This is partially because I have not mastered each language that I am familiar with. There is always something more to learn. Coding has always been a long process for me. I’m not sure if it is longer for me than for the average learner, but I feel like I have had my eyes glued to a computer screen the majority of the time nowadays. <https://app.revature.com/dCourseDtls/884/Introduction%20to%20Java-6>

On average, I spent about 20 hours a week programming. This includes time spent on work and videos for my machine learning class. But, the majority of that time was not spent on labs or homework. At first, it was spent solving Project Euler problems. Then, the machine learning class went at a faster pace than I was comfortable with at some point this semester. So, I then spent a lot of time looking at videos on how to program linear regressions and classification methods for a couple weeks. After that, I spent a lot of that time watching JavaScript videos. I had an interview with Revature, and was told to watch modules on JavaScript programming since I had limited experience with it. Their modules had almost 20 in depth videos in them each. I was only able to get through the first module. A good chunk of that time was also spent organizing my environment, and using command line to upload files to GitHub. The reason I spent so much time on GitHub is because I saw it as an investment to my future. While in quarantine, I was looking for datasets to practice on, and I was interested in visualizing the data from COVID-19. So, I completed a datacamp module on it. But, as there becomes more data available, I want to do more on the topic because I have been enjoying the visualizations I have seen others do. Now that I have been working on my machine learning group final, part of my role of the group is to keep up the GitHub page, as it will be part of our presentation. I’m excited about this because it will make us look very professional, and will set us apart from other groups. <https://github.com/kellyav/eulers_solutions> // <https://github.com/kellyav/machinelearningfinal>

<https://github.com/kellyav/rfiles/tree/master/Visualizing%20COVID-19>

My goals evolved slightly when I was introduced to GitHub. I saw this as an opportunity to create a portfolio for myself, so that employers could see my skills. I made it a goal to make as good of a GitHub profile as I could. I wanted to use command line for practice and upload old assignments and projects I completed. This became a lot of work because I realized I had not saved files in an organized way. Among other faults in organization, I neglected to use the dev folder properly, so my repositories were all over the place. So, I made it a smaller goal to organize my hard drive and get a USB. Once I did this, and was able to free up a lot of space on my drive. I also found lots of broken code that I thought worked. It’s possible that I didn’t clear environments enough or overlooked error in some of my code. It was a long process to clean up my programs. But, after that I made sure to stay organized and it made finding things so much easier. I am still sifting through old projects to see if they are worthy for my GitHub profile.

I would say I’m successful in many ways. I am way more familiar with Python and JavaScript than I was at the beginning of the semester. I am also more skilled and prepared as a developer and know a lot more about software engineering than I originally did. I feel more prepared to get into the workforce. I know I now have a fairly strong background in programming, in combination with my knowledge about mathematics. Although I am not an expert coder, I have proven to myself that I can learn any language if I work hard. And I work hard. I know that employers will see that drive. The only thing that I regret is not getting into this sooner. I realize that this is a sophomore level class, so I tried to challenge myself outside of this class. If I had more time, and took this class “on time,” I would have had even more time to explore and be way better off than I am now.

I didn’t realize that there was more to the field than just simply coding to solve problems. Test driven development really opened my eyes to that side of programming I had no even heard of before. I also didn’t realize the capabilities that my terminal had, and that typing code in the command line could affect something on a website (like GitHub). I see that as a huge success because I understand way more about this field than when I started this semester. I’m no longer a novice that doesn’t know much about anything except solving a couple problems using the limited syntax I knew. When I show people this (family and friends who haven’t seen it before) they think I’m some sort of computer wizard. I feel like it too sometimes.

I could have made clearer more distinct goals so that I could have a quantifier of my success, but I do feel way better about programming now. I’m very glad to have learned about Git and command line coding, because I didn’t realize how applicable they are and how many companies list these things as preferred skills.

I wanted to become more acquainted with coding than I am right now. It’s possible that I did not set realistic goals for myself. I wanted to basically be a professional programmer by the time I graduated college. I still find myself having to pause when programming to refresh on packages, syntax, or how to solve some problems. That is partially why I started writing Github guides on my ISAT repository. I found that the command line badge and the other badges we completed helped me a lot, but it was also a lot to take in. So, I figured I would write myself a cheat sheet and publish it on Github along with the other files for the class. Fortunately enough, the simple act of writing the ‘how-to’ helped engrain the concepts into my brain. I think it will be a good idea for me to do the same for coding basics in the languages I’m familiar with so far. That way, I can maintain my skills that I have learned, as well as have that ‘cheat sheet’ available to me if I happen to forget sometimes when programming. <https://github.com/kellyav/isat_2020>

I also feel as though I failed because I never got an internship or ‘relevant’ field experience. I know this hinders my resume and profile to hiring managers. I originally wanted to go to grad school immediately after undergrad, because I aspired to be a professor. So, I did some tutoring and mentoring volunteer work instead. I still want to be a professor, but I want to get into the field a little bit and make some money before going back to school. I know that I am in an applicant pool of people who had internships at Accenture and big data companies. So, I know it will be slightly more difficult to get a job with the qualifications that I have right now, and the job market that is ahead of us.

It has been the hardest for me to learn JavaScript, out of all the programming languages. In my opinion, it is structured differently than what I’m used to: Python, R and Matlab. At first I definitely failed at grasping writing in Javascript. I was a little lost when we did the Javascript test driven development. But, that just meant that after class when I had time, I worked through what we did in class and watched Javascript tutorials to supplement. I will continue to work on JS and my programming skills.

I learned from not having the experience that employers are looking for by trying to diversify my resume. I also have been watching some videos on interview skills, so that I can be prepared. Talking to people about my situation made me realize that there is some importance also placed on interpersonal skills, so if that is my strong suit, and I prove my work ethic or eagerness to learn, that it may take me farther. So, that has become the main goal after this semester ends. My plan is to take a couple free online Harvard classes in things like web development or software development, as well as communications. I feel prepared to take such classes partly because I took ISAT 252 with Dr. Benton. Had I not, I would not even understand the descriptions of some of the courses. I now have the tools to expand my knowledge exponentially. I also have been way more active on LinkedIn, and I’m learning a lot about networking. I cannot change the fact I lack real life experience in programming, but I can do my very best to make me a strong candidate in every other way.

Taking this class allowed me to spice up my math major. I was able to problem solve in an entirely new way, that was still relevant to my studies. I know I am more well-rounded as a student after learning what I did this semester. I believe that more math majors should be encouraged to take classes such as this one in their time at JMU, because the major is heavily reliant on theory. I also have realized that programming is another branch of ‘applied’ mathematics that many overlook. When people think of applied mathematics, they typically go for physics, finance or statistics. I have seen that ISAT classes, in general, have given me a great integration of many topics in STEM. I think the way this class is taught also adds a lot to my skillset for the data science and software engineering field. Dr. Benton has lots of experience; I enjoyed learning under his methods and consider myself to have been enlightened a little bit because of it. What I have learned through him was not only the textbook stuff, but important details about the real world that made my programming knowledge way more well-rounded. It has opened my mind up and changed my perspective about the field. You can see proof of this throughout this document. I have realized a lot and in using tools learned in ISAT 252 I am building off that every day.

My activities this semester made me realize how applicable math is in this field, and it was a helping factor in my decision to delay graduate school. I was never that interested in other ‘applied’ math fields because I enjoyed theory so much. Instead, I have been applying to data science jobs near me so that I can work in the field and gain some experience. I genuinely enjoy the problem-solving aspect of programming, and this is a great way to apply my background in mathematics into something more applied. I typically enjoy the theory side to math, so I am excited to see my passion for programming grow within the last year. I know that it has opened some doors for me. I realized that I don’t want to simply work with big data. Rather, I want to be able to apply my skills and passion in mathematical analysis into my job, and that can be made possible using my new programming skills as a vessel to math related work. This is harder to come by, but I know that will be the right fit for me.

I deserve an A because I came to class when we had it in session, and payed attention during that time. I also was on track with my points before corona virus hit. My goals were met this semester, and I really got the hang of some very important concepts: Github, and writing code in Javascript. I know that I have worked hard on understanding the new aspects of programming that was introduced by taking ISAT 252, as well as strengthen my prior knowledge of math and coding. I also know that this growth has been growing exponentially, since I have been able to build on concepts from this class.

For example, I created a Github repository for my data science (machine learning) class final project. This will add an element of sophistication to our project because the code is on Github as opposed to Google drive. Github is a way better way to share code, because I went into a lot of detail in the README file, and upload supporting data and links that would have been more cumbersome any other way. I am always looking for ways to utilize the tools that I learned in ISAT 252. You can see that in my 10 repositories I’ve made since starting the class. In short, I took this class seriously, and as an opportunity to expand my resume and skillset in a new way, rather than simply copying down code from lecture. I know I have gotten what I needed to from this course, and that it made me a more experienced and sophisticated programmer.