TechInsights

Computer Science Coop Report

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| To: | Sandra Stark |
| From: | Philip Dumaresq |
| Confidential: | No |
| Date: | August 24, 2017 |
| Re: | Coop Report |

I worked at TechInsights from May 1st, 2017 until August 22nd 2017 under supervision of Wayne Burwell. TechInsights is a company that does reverse engineering of consumer electronics in hopes to achieve insight into the innovation that’s put into new products. The engineers write extensive documentation, takes images and draw up schematics of the inside of these products and their components and sell that information to other companies for them to gain advantage in knowing what their competitors are pushing out. TechInsights also uses this knowledge to help companies manage their patents, understanding which patents are obsolete, out of date, or when they should patent new designs.

The company’s main software product is developed by a 3rd party, so my role in development was in building internal tools for TechInsights’ employees to use. These tools ranged from various simple scripts for cleaning up disk space on the server, to web apps used to manage the mapping of certain pieces of data, to a google chrome extension for locating the originals of images found on their websites. These tools were mostly built in PHP and JavaScript; however, I also did a small amount of Python and AutoHotkey scripting. I used Python for a small script that accessed an email’s inbox and read the bodies of the emails to parse the HTML tables in them into CSV files. I used AutoHotkey for automating some UI testing and to automate a couple computers to run load tests on a server. For one of the web apps I built I also implemented a database for it in MySQL. I created a new schema in an existing database, modelled the tables in the schema and populated all the tables using some PHP scripts to scrape data out of JSON files and insert it into the correct tables. All of my work was done on a Windows 7 machine; however, I was using an FTP connection the entire time to work directly on a server running CentOS 6. Because all the work I did resided on a separate server, I would often SSH into the server using PuTTY. From the PuTTY terminal, I often used Linux tools such as VIM for making quick edits and grep for locating things inside large JSON files, or locating things across hundreds of different files. While I didn’t use bash for any actual scripting, I learned at lot about using Linux.

I used a very large set of the skills that we learned in class. I used all the knowledge we gained about object-oriented programing, using it very frequently to created classes that held a lot of the code that I repeatedly used. I used our knowledge of web design in creating applications that would have actual end-users. I applied our skills in databases from modelling a database to writing triggers for it that would manage all the proper deleting of data from associative tables. I did technical writing for documenting the design of one of the systems I built since I knew I wouldn’t be able to finish it before I left, and that documentation included UML diagrams describing both the static and dynamic functions of the system. Part of the design of this system also included building a prototype for it and showing it to one of the project stakeholders, engaging in a sort of JAD-session/interview style meeting with him.

As well as using a large variety of the technical skills that we learned in class, I continued to learn valuable skills over the summer. The most challenging thing for the first month or so was simply learning about the systems they have in place, how the company works, how all their data and metadata tied together and how everything meshes together in their workflows. This was all complicated to learn, and so I spent a lot of time sending emails to co-workers asking questions about how things worked, and that got me much more comfortable communicating over email than I did before. It taught me how to write professional emails, both informing people of what I’m doing, what’s going on and sort of reporting things in the email, and sending emails asking questions for help, scheduling meetings and effectively communicating with other members of my team. The team I was on also had meetings to discuss workflows between different systems, and these were meetings that I was able to be engaged in the decision-making process for how certain workflows would function between different tools that we developed.

Overall, I feel I was very well prepared for this coop experience. In terms of technical skills, I had all the proper foundations for everything that I was working on, and anything I didn’t know was easy enough to pick up along the way. The best thing about the coop term I think was the freedom that the job allowed me. Because everything I developed was small internal tools, I got the loose parameters that needed to be met, I gave an estimate on the time required to complete it, and then that estimation became my deadline. Because of this and the fact that I didn’t technically develop the tools with other people, I was given a lot of free reign on how I did things. All the code they’re currently running on is pure PHP, which means it’s slow and you need a refresh between each interaction, so I was given the freedom to replace that with AJAX making requests to small PHP server scripts. This small change in how I’m doing things isn’t something I would’ve had the freedom to do in most other jobs, nor something I really expect to have the freedom to do much in future employment, but I really appreciated it nonetheless. The only think that I would’ve liked to have been different about the coop was to have been working with someone from school. The first two months of the coop was hard for me because I was isolated in my work and had very little interaction with other people, so there were times where things got a little lonely. Later in the summer there was other students, which was a really nice change. It was hard just being there as the coop student though.

In conclusion, this was an amazing coop experience for me. I learned a lot about working in a professional environment and picked up a good amount of technical skills while I was there too. I would love to be able to go back for a bit after I finish my studies at Heritage as a good way to begin my career.