Submitted: Thursday August 15th, 2019
To: Sandra Stark
From: Marissa Cleroux
Subject: Computer Science Co-op Work Report
Confidentiality: Nothing in this report is confidential
Attachments: Resumes

## Summary

I was employed at Employment and Social Development Canada (ESDC) from May 6th to August 16th, 2019. My team leader for most of the summer was Brad Chipman. My position title was Student Programmer. I was assigned to work on the Grants and Contributions System, the front-facing module called Grants and Contributions Online System (GCOS), which allows organizations to apply for grants in response to certain open Call for Proposals.

## Employment and Social Development Canada

"The mission of Employment and Social Development Canada (ESDC), including the Labour Program and Service Canada, is to build a stronger and more inclusive Canada, to support Canadians in helping them live productive and rewarding lives and improving Canadians' quality of life." – ESDC Raison d'être

ESDC is one of the largest departments in the Federal Government and it provides invaluable services that are a crucial part of what makes Canada, Canada. Two notable services include: Employment Insurance and the Canadian Pension Plan. With such important infrastructure to keep running there is a lot of work done behind the scenes to ensure smooth delivery. The branch I worked under, the Innovation Information and Technology Branch (IITB) provides a lot of technical infrastructure to aid in the smooth delivery of their essential services. The main job of IITB is to produce applications and maintain systems that "streamline work processes, access data, and process millions of benefit-related transactions to address Canadians' needs."

## Position Description

Tasks would come in via TFS or I would think of tasks for myself and create them in TFS. Bugs would come in via TFS from testers that would then be assigned on a rotating basis to make the work even across the team. In the front-end I used C#.NET, MVC5, and WCF, in the backend I used PL/SQL.

Some of the tasks I got facilitated the automation of certain tasks that were previously done by developers, including features that allowed admins to query the data without having to go through the developers. Another task was to create an automatic email service to let the documentation team know when an update was made and that they had to update the

documentation to match the updates. I got to build these features from the bottom-up which was incredibly fulfilling.

I also got to participate in a release cycle which was very exciting. Bugs came in during each cycle at an accelerated pace and I loved the detective work of figuring out the bugs and implementing fixes for them. This was also challenging because one of the main developers was away for a portion of the time and I received a lot of the bugs which I had to fix on a tight deadline.

## Technical Environment

The main tools, technologies, and environments used during my co-op:

- Windows 7 and 10 Operating System (OS)
- Visual Studio 2015
- SQL Developer
- TFS
- C#.NET
- MVC5 Framework
- Windows Communication Foundation (WCF)
- JQuery
- Oracle DBMS
- PL/SQL
- Outlook

## Skills Used and Acquired

Skills learned from the Computer Science program that were used and aided me in my co-op:

- Troubleshooting
- Problem solving
- Professional communication
- C#.NET
- PL/SQL
- Oracle DBMS
- Database design
- Web design
- Code optimization
- Self-directed learning of new technologies
- Implementing features based on business requirements

Skills that I learned during my co-op at work or in my free time that were needed for my co-op:

- MVC5 Framework
- WCF

- Reading other developer's code
- Automating tasks
- Article writing
- Receiving feedback via code reviews and implementing changes in own code
- Adapting to different programming standards
- Code snippets I'll never forget!

## Evaluation of Co-op Experience

I felt extremely prepared for the co-op, one thing the program has taught me that has allowed me to integrate seamlessly into professional programming is how to learn. Even though I was not familiar with MVC5 and WCF I was able to effectively learn the technologies and use them in my work because the program encourages learning. As well, since I have already worked one term in the government I knew what to expect culture wise.

Technically-wise I was mostly prepared, except for the previously mentioned. I have used SQL Developer, Visual Studio, PL/SQL, TFS, and C#.NET extensively in school and thus was well prepared for most of the technologies I was using on the job.

The highlight of my co-op would have to be getting the opportunity to implement features from beginning to end. I loved building features from the ground up. I was also delighted by the team itself. My co-workers were so encouraging and continuously gave me feedback on how to improve and let me know that I was a great asset to the team.

For the student to be better prepared: it's hard for me to think of how I could be better prepared. The computer science program does a fantastic job.

For the co-op work term to be improved: I didn't have this problem as much as other students I know, as my main mentor, Nicolas Forget, was especially keen on finding tasks for me to do, although he had to work extremely hard at it some days, and for that I am grateful! Brad Chipman, my team lead, also stressed how important it was that I learn during my co-op. However, I know some students who barely got to do *any* programming. This is unacceptable, the hiring managers should be more introspective about how much work they really have to do, and whether they should take on a student or not, especially considering these co-ops are crucial to student's development and employability.

## Conclusion

In conclusion: I had a fantastic co-op experience. My team was supportive and encouraged me to really go for it. When I had ideas or suggestions, they considered them and never brushed me off because I was "just a student." I am keen to continue my career with the GCOS team after I graduate in May 2020.