Algonquin College of Applied Arts and Technology

Winter 2020 Co-op Work Term Report

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**Worked at Canadian Institutes of Health Research (CIHR/IRSC)**

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Introduction

Co-op work term plays a very important part on school curriculum. It gives students opportunities to apply what he/she has learnt to real world projects. Students are able to gain hands-on experience along with their studies. Along with the work experience, learners will find aspects of the field they want to explore in their career path.

The purpose of this report is to summarize co-op work term experience and briefly demonstrate the importance of applying knowledge taught in classroom to the workplace. By the end of the Winter 2020 co-op work term, students can give an insight into the career path they are pursuing.

This report will be included the following points:

* Description of work experience
* Examination of work experience
* Self-assessment
* Recommendations
* Conclusion

Description of work experience

* **Description**: Canadian Institutes of Health Research (CIHR/IRSC)-the major federal agency was founded in 2000, which is composed of 13 institutes. CIHR provides necessary support health researchers and trainees in Canada as well as partners around the world. Its mission is to “create new scientific knowledge and to enable its translation into improved health, more effective health services and products, and a strengthened Canadian health care system”.
* At CIHR, we receive requests from internal institutes as well as external stakeholders. Our responsibilities are to analyze data in our system and send good data to our requesters.
* **Roles and responsibilities**: Working as a junior data analyst, I have a great deal of chances to deal with large data. After completing a mandatory training, I have opportunities to be involved in projects with my supervisors. My daily duty is to analyze the data, filter out them and calculate the numbers from different datasets and export data which meets their requirements. R programming language is one of the most powerful language to deal with data. It was not until working at CIHR that I had more opportunities to develop my data analysis skill. Although R is not included in school curriculum, it is somehow similar to SQL and MySQL. SQL knowledge I obtained in the classroom gives me a strong foundation to learn R. With my supervisor’s instruction and background knowledge, it took me only one month to learn basic theories and concepts in R, so then I can quickly take part in projects of our team.
* **Learning Objectives**: In the beginning of my co-op work term, I list the following learning objectives:
* **Learn a new language ( R ):** I acquired basic syntax and concepts of R programming. It broadens my career path. This skill develops gradually through projects I am assigned. I found my real ability when I learnt this language.
* **Apply concepts of SQL and MySQL**: When I completed the SQL course, there was still concepts I did not truly understand. For example, joining data from different tables such as right join, left join, inner join and full join required me a lot of time to find out the solution. Sometimes I got the correct answer, but still did not what how it worked. At CIHR, all of my projects require me to join different tables together because our data is large and they are stored in different files. I learned how to join it again, but this time it made more sense.
* **Acquire data visualization skill**: Before taking the co-op work term, the concept of visualizing data is quite new to me. In spite of working with data, I was not able to make graphs to demonstrate the data. It can be the growth of Canadian population over the time, or simply show percentages of male and female students in my class as a pie chart.
* **Learn some French:** To become a CIHR employee is one of my great experience. I can access to the library to learn some basic French that I speak some simple sentences with my IT co-workers.
* **Next co-op work term learning objectives:**
* **Learn more R packages**: There are so many packages in R that are useful for junior data analyst to learn. To complete the job easier, there is a good way that is to learn new packages. I currently just obtain some basic packages, in the second co-op work term I have intention of learning more powerful packages. In addition.
* **Participate in more bigger projects**: Making a great effort to complete current requests is an additional point to work on the bigger projects in the second co-op work term.
* **Enhance the work efficiency:** I will try to find better ways to do the requests in the shortest time and improve coding style.
* **Request to do independent project:** Coming up with a new independent project is a good approach to learn new skills. I admire my co-workers a lot when they demonstrated their independent projects. There is much more new knowledge to achieve.

Examination of learning experience

Before the co-op work term, I was curious about what I was going to do in CIHR. It raised some questions that whether my skills can match with that type of job. What I did not know that working at CIHR is one of my greatest experience during my student life. In my first day at work, I was warmly welcomed by our colleagues. They gave me a spot where I share with another student in our college. My team members are so friendly and helpful. Knowing that we have a co-op work term, they often offered help for us whenever we encounter complex problems. My first impression is that my manager is so friendly and helpful. She always created the pleasant environment, so I felt I was living in a family instead of a workplace. I was given adequate instructions so that I could quickly adapt to the new working environment. I really appreciate my manager who shapes my career and professional life, and she is ready to transform my mistakes into skills. I take pride in learning these from her. One more important person is my supervisor directly advising me everything from the first day at work. Starting a new job in a new environment requires some times to adapt to it. However, I can shorten the amount of time by learning from her experience. She explained every single detail from small acronyms to complex concepts until I was clear enough. On doing the projects with her, I always received comprehensive information and feedback. She showed the pros and cons of my approach to solve a problem, and also recommended better ways to complete the project most effectively.

It was a great excitement when finishing the first request which I could apply new skills to real work project. The early projects are always the toughest ones because my skills need to sharpen before I can get used to it. These ones required me a lot of time to come up with solutions, there were times I had to spend several hours just to tackle a small part of the project. However, I learned valuable lessons from these requests.

My most challenging is how to use the data in the organization’s system to complete the given requests. There are hundreds of files of data in our database which takes a specific amount of time to understand it. The more I know about our data, the easier I can complete the requests. The challenge is that I did not know it well enough, so I found it difficult to pick up the correct information for my requests. However, these challenges gave me more motivation to discover it as well as excitement to work on the future requests.

Self-Assessment

* **Learning about data analysis:**
* R programming language, Power BI , data manipulation, and data visualization are skills I gained at CIHR. To pursue data analyst career, these skills are a must to learn. Working in a team is also crucial skill for students to learn. To deliver the projects successfully, I need to communicate with my supervisor and team members, get feedback and fix coding errors. These are one of the key factors to produce the good result. Without feedbacks and discussions, a project can be failed to deliver on time and probably turn on unexpected issues.
* There are so many positive experiences in my first co-op work term. The most significant one is that I find my real interest when I deal with data. Surely working as a data analyst will be my future career. I will spend more time on it to discover new horizon of knowledge. Data analysis skills need to be sharpened and developed. To do that, I need to join in more intensive training courses in DataCamp, Udemy , LinkedIn or any websites providing the courses I am looking for.
* **Learning about myself:**
* Catching up some French is the basic step for me to learn French afterward. There will be more opportunities for those who can speak more than one language. Especially, individuals wish to work for the government. It will be considered as an asset if anyone can speak English and French at the same time.
* At CIHR, I had chances to learn some useful courses. Introduction to Gender-based Analysis Plus (GBA+) is one of them. Broadening knowledge on “concepts of GBA+, identifying factors can influence the experience of federal government initiatives, enhancing the responsive ness, effectiveness and outcomes of federal government initiatives, and applying some foundational GBA+ concepts and processes”.

Recommendations

During 4 months of co-wop work term, I gained a lot of skills that are useful for students in their career path. I realize that our college does not provide R programming and Power BI in school curriculum. As far as I am concerned, there are a lot of positions related to data science in the job market. However, the number of programs including R programming and Power BI is limited. I would suggest that Algonquin College should open new data courses for those who wish to pursue career as a data scientist, or at least include R in some existing programs. If this could be done in the near future, there are promisingly benefits for both Algonquin College and learners.

In general, Algonquin College can get handsome profits because they provide more options for students who are willing to enroll program they are interested in. In addition, the local companies and organizations have a good source of potential employees for their future demands. As an individual, students may have more choices to pursue their future job.

Conclusion

To summarize, this co-op work term report focuses on experiences during 4 months. Work experience including of responsibilities or gaining new skills at work, examination of work experience, self-assessment, and recommendation are key points in this report.

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Appendices

1. R: a programming language mostly used for data analysis
2. Power BI: a tool to visualize data (pie chart, line graph, bar chart,…)
3. SQL: stands for Structured Query Language used to handle with data
4. MySQL: is an open-source relational database management system
5. GBA+: Gender-based Analysis Plus is a required course for all new employees of Government of Canada.