Interim Work Term Report 4 COMP 3999A

FOR THE WINTER 2014 PLACEMENT AT THE OFFICE OF THE AUDITOR GENERAL OF CANADA

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Dr. Christine Laurendeau
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Dear Madam,

This is my interim report for my forth coop work term and was prepared in connection with course COMP 3999A for my Co-op placement at the Office of the Auditor General of Canada (OAG). I worked as a Developer in the IT Applications team lead by Alain Roy. Most of my term was spent on the Product Cost Management (PCM) Project lead by project manager Erin Larsen.

This interim report gives an overview of what has been done during the work period thus far, as well as what would be done for the remainder of the work period. During this term I mainly worked on front-end related tasks. Primarily I was assigned to refactor parts of a web application called Product Code Management (PCM). Towards the end of the current work term I was given the task of creating additional maintenance related screens which allow for administrators of the application to manage internal data and automate notifications from within the PCM application.

This report has been prepared and written by me and has not received any previous academic credit at this or any other institution. I would like to thank Alain Roy (Director of IT Applications) for helping in reviewing this report.

Sincerely,

Ankush Varshneya
Student number 100853074

In a previous term at the Office of the Auditor General of Canada I had been hired to implement maintenance related screens which allowed the administrators of the PCM application to easily maintain data, related to the application within the application itself. This term has been continued from where it last left off with the maintenance related screens.

The Office of the Auditor General of Canada (OAG) is an independent audit office and a world leader in legislative and environmental auditing. They conduct independent audits and studies that provide objective information, advice, and assurance to Parliament, territorial legislatures, boards of crown corporations, government, and Canadians. The IT Application provides various software tools which helps the office to carry out all necessary tasks.

In the IT application department, employees are usually assigned to a project for an application, for example I was assigned to the Product Cost Managements project. Each project consists of a project leader and other employees such as developers. Everyone in the project team reports to the project leader on progress related to the project. An employee is usually swapped in between projects as needed by project leaders. Every employee in the IT application department also reports to the director (DX), Alain Roy. All the DXs of various departments throughout the company report to the Principal (PX), the PX of the IT is Jean-Charles Parisé. The PXs report to an Assistant Auditor General (AAG), The AAG for IT is Lyn Sachs. All the AAGs report to the Auditor general of Canada, Michael Ferguson.

OAG follows agile project management methodologies, as a result many project teams consisting of cross-functional teams of the project leader, developers and key business users meet on a daily basis in stand-up SCRUM meetings. These meetings are arranged by the project manager, where the developers discuss the progress of the project as a whole with the business, as well as gather the users' feedback. Developers also discuss their progress with the project leader and may also use this time to get opinion and help from their fellow developers. Additionally, new feature implementations and improvements are also discussed here. These meetings are a great opportunity to find out what's going on around you, what your fellow colleagues are working on, it gives you a great understanding of the project and it's a great opportunity to follow up on any questions you may have. Since developers are sometimes switched around from project to project, these meetings are a great place to find out about what's going on in the project you may have just been assigned to.

For the duration of this term, the PCM Application Project was in the maintenance phase. This phase involved fixing software and UI related defects, and refactoring the application to be more consistent with newer guide lines set by the IT application department as well as addressing any new features requested by the business users.

During this term I was primarily assigned the responsibility of refactoring maintenance related screens for administrators to manage the PCM application as well as refactoring other screens which made use of the data managed by the maintenance screens. The refactoring phase consisted of 3 sub phases, fixing software and UI defects, changing sub components of the application to be more consistent with other parts of the application, and addressing any feature changes requested by the business users.

The application follows a client server like architecture, traditionally the business logic was present in both the server and client subsystems of the application. This meant that input was being validated partially on the client and partially on the server. As part of the refactoring phase the business logic and input validation code were to be fully moved to the server sub system as part of the Domain

object. Furthermore, any objects related to business logic were fully removed from the client subsystem. This left the client subsystem with the view objects, controller objects, and viewModel Objects. The view objects contained HTML code, JavaScript code, and CSS code. Controller objects only contained logic to redirect to the appropriate view. And lastly, the viewModel object were used as wrapper objects to contain and manipulate data as needed by the view objects. As mentioned previously, this refactoring was applied, by me, to the maintenance screens, the screens that used data from the maintenance screens, and other screens that had previously not been refactored.

In parallel to the refactoring phase the other task I was assigned, was to address software and UI defects and feature updates. One of the software defects was to do with the fact that certain data created from within the maintenance screen was not detected by the find component of the application. With the help of a fellow co-worker, I was eventually able to find out that this was largely due to one of the columns in an SQL view being hardcoded. I was able to communicate this issue with a fellow back end developer, and together we added the functionality to have this column be generated from user input rather than hard coding them.

Promptly after fixing the software defects, I started fixing UI defects. This involved frequent consultations with the Usability Architect at the office. This mainly involved cleaning up the UI, making it consistent throughout the web application, and eliminating unnecessary white space without sacrificing usability. In addition to this I also altered the UI to allow for additional features requested by the business users.

Towards the end of the term I was given the task of implementing additional maintenance screens as requested by the business users. This task was very similar to what was done in a past work term at OAG. Primarily, I had to gather requirements, and process them into low level mock-ups which were then reviewed and finally implemented. One of the screens had to do with the ability to maintain the fiscal year table in the backend. This task involved making screens to allow an administrator to close or freeze an existing fiscal year as well as to add future fiscal years. Following this task, I am currently working to add functionality to the application, to automate the sending of emails to interested parties from within the PCM application, if a pre specified event occurs. This is done through Simple Mail Transfer Protocol (SMTP).

Since the PCM project is close to finishing the maintenance phase, I will be helping with the PCM project until the end of the maintenance phase which may extend into my next work term. Following the finish of the PCM project, I will be assigned to a different project which has yet to be decided between me and my manager.

Reflecting back on the term, it has been a fantastic learning experience for me. Refracting the pre-existing code helped me to better understand the PCM product as well as some other products it connects with which intern, helped me to better understand OAG as a whole and what they do. I look forward to coming back next term and being able to work on other projects.