

# CA341 Assignment 4

## Critical Reflective

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## What worked for you?

What worked out for me? The comparison between a Functional Programming language and Procedural Programming Language worked out. Initially creating the report between both languages was a big task as research was limited however after spending numerous hours looking up articles and posts based on both languages. I managed to piece together a report. The learning outcome of the project itself and the gained knowledge of “Performance/Efficiency” and “Data Types/Systems” was all a bonus.

Developing a Binary Search Tree and its functional implementations in Haskell and Prolog was a fun and amusing experience. Haskell and Prolog are both languages that I would not go out of my way for and having to develop in them for the project meant I had to be put in an uncomfortable zone when

coding. Despite the comfortability, the process of learning the languages and how to implement their data types and functions inputs and outputs was a quick, easy process that I found to be easy and understandable.

The section regarding Data Types and Scope quickly clicked with me. The theory based on the topic itself was fascinating and when studying the content I fell deep into the learning process and even went and conducted my research. For example, I never completely understood the aspect of mapping with programming languages but after reading and educating myself through the course slides I grew an understanding of the topic.

## **What did not work for you?**

Originally several unexpected factors did not co-operate with me. Firstly, the biggest of them all, time within the assignments. Due to a busy schedule and tight deadlines, I was not able to display my full capacity when undergoing an assignment. Due to this factor, I lost a lot of time where I could have spent researching and expanding my knowledge towards the assignment topics as well as developing a high-quality assignment submission with a more in-depth understanding.

Whilst attempting to create a command-line interface for the first assignment I ran into a selection of problems. First, I created a mission plan for a UI for both Python and C, however, I struggled to remember how to implement such a feature in both languages and I found it difficult to find appropriate content on google to assist me and for references. Secondly, I had run out of time too, however, if I had more time, I am positive my goal to implement a clean and professional interface wouldn't have been an issue. However, instead, I implemented a fixed UI system to display the PhoneBooks and this proved to be a quick, easy fix. Below is an example of that fix that was also converted to C.

Another issue that occurred was re-learning Prolog and how inputs and outputs are operated. I had basic knowledge to commence with and had to further develop it along as my Prolog skills were minimal. The biggest concern for me was trying to perform tasks in the functions with the desired inputs. I knew how to initialize and assign the variable/input however did not know how to go about creating the Binary Search Tree Solutions. To overcome this obstacle, I divulged into articles and websites on how to perform functions with inputs and outputs although I did not find them to be practical or useful as the majority of the article provided were outdated. I finally overcame this problem by taking into account David Sinclair's notes to *Introduction to Prolog*.

## **What actionable knowledge did you learn?**

I learned a lot throughout the course of the module. The topic that I enjoyed most was Logical Programming and the theory and practical behind it. I was never a fan of Prolog just from the material I was thought however this year with Comparative Programming it was the opposite. All aspects about other languages I already had a grasp of however for Logical programming and especially Prolog I didn't have a notion. Database Manipulation, Bindings and Scope and how Prolog operates were all topics from this module, from the Logic Programming slides that I enjoyed learning and adapting to.

The comparison between Functional and Procedural was also a huge help. The in-depth analysis was interesting and satisfying. Gathering online resources to support facts and to understand the concept was challenging however the satisfactory part was finding the correct factual information which only developed my knowledge even more on both languages.

A huge insight I learned was the in-depth analysis of Python's theory. I am not much of a fan of learning through theory but Assignment 4 proved that wrong. Developing a critical analysis allowed me to further understand Python as a language and how complex it can really be. From its History to how it performs compared to other competitive languages, it was all intriguing. Python is by far my favourite language at the moment, I know most of its concepts and what it has to offer but going into a deeper understanding of the language and its background was highly useful and knowledgeable. I researched a lot of the core notes from David Sinclair's notes as well as many online articles.