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Assessment 2: Individual Reflection

Introduction

The Gibbs reflective cycle will be utilised to effectively reflect on the Numerical Analysis module, focusing on the experience of interpreting statistical findings, using R for data analysis and creating plots in R studio. The Gibbs model divides the reflection into six stages: Description, Feelings, Evaluation, Analysis, Conclusion and Action plan (UoE, 2020). The six stages of the Gibbs reflective cycle creates an emphasis on obtaining a deeper understanding and encouragement of learning leading to an improvement of future practice (Husebø et al., 2015).

Interpreting Statistical Findings

Interpreting statistical findings is a significant requirement of the Statistical Analysis module. While learning about how to interpret statistical finding the process is broken down into easy to interpret pieces, making it seem simple to understand. In practice it can be difficult to interpret findings initially there are multiple values and figures given that can seem overwhelming. At first I was confident that I would be easily able to interpret any statistical findings that I was presented with, however while attempting to interpret my own findings I felt less confident that I was interpreting the results correctly and I was nervous that I may have not selected the best methods to get the results. It is essential to understand and interpret findings correctly as incorrect interpretations can lead to misleading conclusions being made (Tan & Tan, 2010). The reason why I feel less confident in interpreting my own results could be due to the fact that I can not check my interpretation against another to confirm that I am correct. Das (2022) states that a person's desire for certainty is a key reason why they find statistics difficult to interpret. To build confidence in interpreting results I will revise the module to gain a firmer understanding of the material before practising with a training dataset and place more faith in the interpretation of the data.

Using R for Statistical Data Analysis.

Prior to the start of the Statistical Analysis model I had never used R or R studio before. Since I had a firm understanding of Python I expected to be able to learn R relatively easily and be able to understand. Initially I managed to understand and implement the basics of R very quickly and efficiently which boosted my confidence. Confidence may have many beneficial effects however can lead to a manifestation of over-placement. Over-placement, also known as the “better-than-average effect” is an exaggerated belief in one's skill even in the face of objective performance standards (Meikle et al., 2016). This confidence led me to go through the learning material faster than I would have done usually. This eventually led to me not retaining certain pieces of information and making more mistakes in my work. After these mistakes were made my confidence decreased and I became frustrated which had a detrimental effect on my productivity moving through the module. Graziotin et al. (2018) found that frustration is the most commonly occurring negative emotion in roles that require technical skills and problem solving such as software developers, this frustration also has the greatest detrimental effect on productivity when compared with other emotions.

When a programmer is learning their second programming language the new language can be

related to the previous language to accelerate the learning process however it can cause “interference” when major differences occur between the languages (Shrestha et al., 2020). In the future I will allocate more time to complete learning material at a slower pace and use it as an opportunity to build a solid foundation of knowledge which will aid me in my understanding when reaching the more advanced components.

Producing Plots Using R

Throughout the module there was the requirement to use R to create a variety of tables and graphs. Creating basic plots and graphs in R seems to be more efficient than using python requiring minimal data preparation and lines of code to complete, however python appears to allow for greater control in modifying the data and the outputs. I feel confident in creating basic graphs in R however when attempting to create more advanced graphs and manipulating data my greater experience using Python means that I still feel quite unfamiliar using R language. Resnick & Rusk (2020) states that to become truly fluent in a coding language there are four factors that aid progression; taking part in meaningful projects, being passionate about the topic, interaction with peers and experimenting. During the module I have failed to fully engage in interacting with my peers to reflect on taskings and discuss any difficulties that were faced or to gain any advice. To improve my skill and knowledge I aim to start interacting more frequently with my peers.

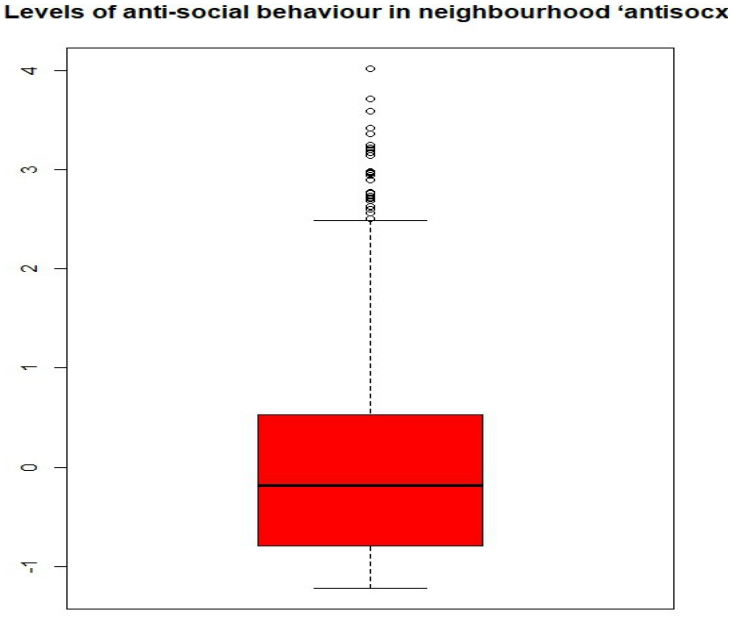

Figure 1: Image of first plot created in R

While creating a graph for a data activity there was an error which led the output to be displayed incorrectly (see Figure 2). This situation was handled positively by using previous experience in coding as I methodically went through multiple methods of troubleshooting. After checking the script I was unable to discover the cause of the error as the code seemed to be correct and R studio was not displaying that there were any mistakes. I found this to be demoralising as there was no clear reason for the error to occur. The problem was solved by using a different library to create the plot instead (ggplot2). In the future I will ensure that less time is spent trying to solve an error by utilising different methods of completing a task.

Figure 2: Data Activity Error output

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