**SCHOOL OF COMPUTING**

**Programming for Data Science**

**Self-Reflection (CA1)**

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| **Instructions:**   1. Submit this at Blackboard “Assignments->CA1->Self-Reflection” folder 2. Name your file “YourModuleClass-YourStudentID-YourName.docx” |

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| **Module Class** | EL/EP0302/FT/02 |

# QUESTION 1: CHALLENGES - SELF-REFLECTION FOR CA1

Provide a brief reflection of the challenges you have faced in this assignment.

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| A personal challenge I faced was finding datasets that were relevant to the project statement, which was regarding health. It was made worse by the fact that we could only work using CSV files. As such, there were only about 78 files we could choose from. As such, this caused lots of headaches when researching and selecting datasets, as there were either a lack of a quantitative dataset or the absence of a dataset to support my hypotheses. As such, a large majority of the time was spent iterating on the central theme and finding a good dataset that enables us to plot bar graphs, scatterplots, histograms, pie chart, line graph and boxplots. Fortunately, I was able to settle on a topic that I was interested in, which was whether there were enough doctors and facilities to handle the increasing number of patient admissions.  Another personal challenge I encountered was when coding for data visualization. When I was initially plotting, I would always produce graphs that were extremely skewered. For example, a line graph I created would exhibit a consistent and linear trend for years before abruptly dropping to -1. As a result, I was confused. On the one hand, the line chart on data.gov.sg trends were perfect, but mine will exhibit abrupt changes. As such, I decided to open the CSV and realized there were empty rows. And, upon further research, I learnt that 'NumPy.genText' converts empty rows to -1. Upon gaining this knowledge, I immediately went to fix it. I then used data masking to filter out datasets that may have to contain empty values. Albeit sounding fantastic, much revision must be made to the plotting of the graphs. As such, I had to redo most of the graphs, causing me to be tired and frustrated.  The last personal challenge I faced was spending long periods of my time debugging and fixing the code. For example, when coding the annotations for the grouped bar graph, I was plagued with issues, due to the vast solutions provided by Stack Overflow forums. As such, I was confused as the code provided was very complicated. Hence, I would spend much time trying to "decipher" how the code works. However, through trial and error, I managed to get the code working. As such, my initial panic and stress turned into satisfaction, as it was rewarding to finally see the code working. Moreover, this made the graph more elaborated and detailed, which was key to generate insights. |

# QUESTION 2: ACHIEVEMENTS - SELF-REFLECTION FOR CA1

Provide a brief reflection of what you think you have personally achieved in this assignment or the knowledge or skills you have found satisfaction in learning / acquiring. Indicate all the online courses you have taken.

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| The most important takeaway knowledge I gained was how to use Matplotlib functionally for data analytics. As I am an IT student, we would usually need to give presentations. As a result, I was always struggling to give impactful presentations when it came to technical and analytical aspects, as I would tend to overexplain without the aid of a visual device, such as graphs. This resulted in my presentations being lengthy and confusing, which was the case for my Design for User Interaction module when presenting on user-related metrics such as their retention time. As a result, I felt like I did not convey the message across, and my classmates were confused. However, after learning Matplotlib, I would say I am more confident in producing higher quality graphs that will aid my presentation. It will also help me when it comes to when highlighting key takeaways. Hence, I would see myself using and applying the knowledge I gained to my other modules, such as Social Innovation Project, which places a strong emphasis on analytical thinking.  Another skill that I gained was learning to interpret and explain graphs. In the past, I would struggle to understand how to interpret graphs. As a result, when I read articles on the Straits Times, I would just skim over the graphs and statistics without really understanding. As such, this led me to understand the issue that was at hand at a very surface level. An instance of me just skimming the surface was when I came across an article that concerns the pricing and sales of HDB flats. I would generalize the issue and think, "Oh, the prices are increasing every year". However, after learning how to interpret graphs from my teacher, I began to think more critically. I began to ask more questions like, "Why are the prices of HDB continually rising?" or "Who are the most affected by the rise in HDB prices?" Hence, this enables me to understand the underlying issue better and find justifications for it, which I hope to practice in my day-to-day life.  The last thing I have gain mastery in is the Python language. Though I have informally used Python before, my command of the language was primitive and wonky. I seldom used Python and rarely utilize its vast libraries. However, after learning Python through a formal setting, I would say I am now more comfortable with it. Moreover, these fundamentals of mine were also reinforced with the online videos I watched. For example, the "data analysis with python - Full course for beginners" video by FreeCodeCamp.org. It contained a brief crash course of how Python and NumPy works and notebooks for us to practice with. Hence, through this, my fundamentals have improved. I now know what a tuple and regression are. This enabled me to quickly code out necessary loops and functions to complement my graphs, for instance, annotations. As such, this made me satisfied but also proud of myself, as I never thought I would be able to do that. |

**-- End of Self-Reflection --**