Reflective Piece

Introduction

The aim of this module was to provide a foundation in research practices, with emphasis on skills such as project planning, conducting literature reviews, and research design. Throughout this module, I combined theoretical knowledge with practical tasks and formative exercises. Additionally, topics such as ethics in research broadened my understanding of responsible practices. However I did not pass this module on my first attempt and I had to resubmit my Literature Review and my E-Portfolio a few months after I began the module.

In this reflective piece, I will discuss my experiences in the module and the resubmission, the challenges I faced, and how I plan to apply these lessons in the future. Bryman (2016) states that reflection is both a tool for personal development and a vital aspect of research practice, enabling researchers to critically assess their own assumptions and methods.

Module Details

The module was structured to cover various topics on scientific research, including data collection methods (e.g. surveys and interviews) and research methodologies. Focus was placed on understanding the legal, social, and ethical considerations in the field of computing by using collaborative discussions and case studies centred on data privacy and ethics in AI. Learning about this topic is imperative for any data professional because there can be devastating consequences when ethical issues are not properly addressed, such as the case whereby automated decision making software displayed gender and racial biases when shortlisting applicants for jobs (Stavrakakis, 2022).

Another important topic was Research Methodologies. According to Creswell (2018), aligning research questions with appropriate methodologies ensures a coherent approach to data collection and analysis. This concept was reinforced throughout the module as I learned about the three primary types of research: Qualitative,

Quantitative, and Mixed methods. This helped me understand how to select the appropriate method for a research project based on the nature of the investigation.

In my experience I mostly use Quantitative Research Methods in my projects whereby I collect and statistically analyse numerical data to discover patterns in the data. Quantitative Research methods are crucial for Hypothesis Testing as well as for Prediction tasks and they allow data professionals to gain insights and make data-driven decisions across various industries (Lim, 2024). Qualitative Research Methods are, on the other hand useful for Inductive approaches to research. I also learned about data visualization techniques, including creating dashboards, which are useful for clearly presenting research findings.

The module delved deeper into the application of descriptive and inferential statistics in Quantitative research. An important artefact of the module was the Research Proposal for the topic of Predictive Policing. I created a methodology for this project, which included the stages of Data Collection, Pre-processing, Model Development and Performance Evaluation. I also learned how to clearly and effectively structure and present a Research Proposal presentation. Topics on research writing, project management, and risk management were also covered, all of which are integral to conducting high-quality research projects.

My Experience

This module was primarily research-based and largely consisted of independent study. As part of my coursework, I conducted extensive research on a range of topics, including machine learning models, and data privacy concerns. One of the key skills I developed was the ability to conduct thorough research while adhering to academic integrity standards. I learned how to properly cite sources and avoid plagiarism, which is vital in maintaining the credibility of my work.

I carried out a Literature Review, for which I also had to do a resubmission. With the resubmission of the Literature review on the topic of Machine Learning algorithms in Media and Entertainment Recommendation Systems, I learned to critically analyse the research and literature on a given topic. I also learned how to properly structure

a Literature Review, as well as how it is a research method which allows one to keep up with the current research and to assess the collective evidence in a particular research area (Snyder, 2019). As part of the Resubmission, I restructured my E-portfolio by creating a new branch and clearly organizing the artefacts of this module in my Github repository under the folder "RMPP Artefacts" such that they are easily accessible. This experience will be useful to me as I manage my Capstone project in Git.

In addition to the independent study, there were several seminars conducted by the tutor which clarified various aspects of the module, including how to approach the e-portfolio assignments. The most useful aspect of the module was the series of inferential statistics, hypothesis testing, and data visualization worksheets. These real-world applications of theoretical concepts helped me build practical skills that I can apply in future projects A challenge of the module was managing the amount of research required, balancing work, personal life, and academic responsibilities. However, I learned how to plan research-intensive coursework carefully and allocate adequate time to complete tasks to a high standard.

Skills Gained and Future Applications

Over the course of this module, I gained a variety of valuable skills that I can apply in both academic and professional settings. One of the most important skills I gained was how to critically evaluate existing literature for a given research topic, and the knowledge I gained in this module will help me tackle future research projects more effectively. I now have a clearer understanding of how to select the appropriate data collection methods and how to determine a research methodology. Artefacts such as the Professional Skills Matrix and SWOT Analysis allowed me to assess my technical, professional and social capabilities to date. The ethical codes of conduct will also guide my future work, ensuring that I conduct research in line with professional standards.

Conclusion

This module was an invaluable part of my academic and professional development, and while the module presented challenges, particularly with time management of independent study, it has made me a more capable researcher. The skills I gained will be useful in the future Capstone Project

References

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