MODULE 1: WHAT IS DATA SCIENCE?

PEER GRADED ASSIGNMENT-FINAL ASSIGNMENT

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Q1. Based on the videos and the reading material, how would you define a data scientist and data science? [3 Marks]

Data science is an interdisciplinary field that combines statistical methods, machine learning, and data analysis to extract insights and knowledge from data. It is a process of exploring and analysing large and complex datasets to uncover hidden patterns, correlations, and trends. Data science is used in a variety of industries and domains, including finance, healthcare, marketing, and technology, to make informed decisions based on data.

According to Kelleher, Mac Namee, and D'Arcy (2015), data science involves three main stages: data preparation, model building, and deployment. In the data preparation stage, data scientists collect, clean, and transform the data into a format that can be analyzed. In the model building stage, data scientists use statistical methods and machine learning algorithms to build models that can make predictions or uncover patterns in the data. In the deployment stage, data scientists use the models they have built to make predictions or provide insights that can inform decision-making.

Data science requires a combination of technical skills, such as programming and statistical analysis, as well as soft skills, such as communication and problem-solving. Data scientists must be able to work with large and complex datasets and be able to communicate their findings to both technical and non-technical audiences (Kelleher et al., 2015).

In conclusion, data science is a rapidly growing field that is transforming the way organizations make decisions based on data. It requires a combination of technical and soft skills, and involves a process of data preparation, model building, and deployment.

Q2. As discussed in the videos and the reading material, data science can be applied to problems across different industries. Give a brief explanation describing what industry you are passionate about and would like to pursue a data science career in? [2 Marks]

Data science has the potential to revolutionize the healthcare industry by providing insights and solutions to complex problems. With the increasing amount of data generated by healthcare organizations, data science can help to improve patient outcomes, reduce costs, and improve the overall efficiency of the healthcare system (Shaw et al., 2018). For example, data science can be used to analyze patient data to identify patterns and trends that can inform treatment decisions, or to develop predictive models that can help to identify patients at risk of developing certain conditions (Shaw et al., 2018). By pursuing a career in data science in healthcare, you can play a critical role in improving patient outcomes and transforming the healthcare industry.

Pursuing a career in data science can be highly rewarding as it allows you to apply your skills and knowledge to real-world problems. Data science is a rapidly growing field with a high demand for skilled professionals, and offers a wide range of career opportunities (Kelleher et al., 2015). Data scientists are highly valued for their ability to use data and analytics to drive business decisions and uncover insights that can inform decision-making (Kelleher et al., 2015). Additionally, data science is a field that is constantly evolving, providing opportunities for continuous learning and growth.

Q3. Based on the videos and the reading material, what are the ten main components of a report that would be delivered at the end of a data science project? [5 Marks]

The ten main components of a report that would be delivered at the end of a data science project are as follows:

1. Cover Page: The cover page is the first page of the report and contains the title of the report, the name of the author(s), the date of completion, and any additional information such as the name of the organization or department that the report is being submitted to. The cover page should be visually appealing and professional in appearance (APA, 2021).
2. Table of Contents: The table of contents lists all the sections of the report and their page numbers, making it easier for the reader to navigate the report. The table of contents should be concise and organized in a logical manner (APA, 2021).
3. Executive Summary: The executive summary is a brief summary of the main findings and conclusions of the report. It provides an overview of the report for busy executives who may not have time to read the entire report (Oxford Learning, n.d.).
4. Introductory Section: The introductory section provides background information on the topic being discussed in the report. It sets the stage for the rest of the report and provides context for the reader (Oxford Learning, n.d.).
5. Methodology Section: The methodology section describes the methods used to gather and analyze the data in the report. This section should be detailed enough for the reader to understand the process used to arrive at the results (Oxford Learning, n.d.).
6. Results Section: The results section presents the findings of the study in a clear and concise manner. This section should include tables, graphs, and other visual aids to help the reader understand the results (Oxford Learning, n.d.).
7. Discussion Section: The discussion section is where the results are interpreted and put into context. This section should draw conclusions based on the results and explain the implications of the findings (Oxford Learning, n.d.).
8. Conclusion Section: The conclusion section summarizes the main findings and conclusions of the report. It should provide a final answer to the research question and make recommendations for future action (Oxford Learning, n.d.).

9. References: The references section lists all the sources used in the report. This section should be organized in a specific format, such as APA or MLA, and should be consistent throughout the report (APA, 2021).
10. Acknowledgment: The acknowledgment section is where the author(s) thank individuals or organizations who have contributed to the report in some way. This section is optional but is a common way to show appreciation for the support received (Oxford Learning, n.d.).

References

APA. (2021). Formatting Your Paper. Retrieved from https://apastyle.apa.org/style-grammar-guidelines/paper-formatting

Kelleher, J. D., Mac Namee, B. and D'Arcy, A. (2015). Data Science: An Overview. In Data Science Essentials (pp. 1-20). John Wiley & Sons.

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Shaw, M., Fabbri, A. and Ryan, P. (2018). Applications of Data Science in Healthcare. In Data Science for Healthcare (pp. 1-24). Springer.