INDIVIDUAL ASSIGNMENT FOR DATA ANALYTICS IN BUSINESS

* Assignment (individual)
* Topic: Individual project of data analytics in business
* 3,000 words +/-10%[[1]](#footnote-1)[[2]](#footnote-2)
* Deadline: 20th January 2022, 1:00 PM
* 100% of the total mark

Learning outcomes

1. Discuss the concepts and methods of data analytics using relevant and appropriate terminologies.
2. Design a data analytics project with a critical assessment of the data mining process and techniques involved in collecting, managing, and modelling actionable data.
3. Use a range of descriptive analytics techniques to discover, visualise and interpret patterns in a large amount of data.
4. Apply predictive analytics to predict future outcomes and model scenarios to address a range of business problems.
5. Evaluate and communicate insights derived from data to a critical audience and make them effective in actual business decision-making.

The Task

The assignment will focus on a data analytics project in business. Students will work individually to analyse a data set using appropriate data mining approaches to make predictions about future outcomes. The report (3,000 words) should describe the methodologies and results of data exploration and analyses. Students will also have to read relevant academic and practitioner literature to explain the managerial relevance of their work.

Students are assumed to be business analyst of **a company they selected**. The managers of the selected company wish to understand the industrial sector they are competing from perspectives of either marketing or management. To complete the tasks, the students will need to analyse **ONE of the two data samples provided by the instructor** or **any other public assessable data sources[[3]](#footnote-3)\***.

The gathered data will be used to analyse your company’s and your competitors’ relative business performance, and to develop understanding of the competitive position of your company. Specifically, you will analyse relevant business indicators, predict the relationships between the business indicators and performance, and develop insights into your company’s current position against the selected competitors based on the data analysis and theoretical understanding. A list of possible business questions will be provided with the instructor’s database.

Task based assessment:

Q(1) The students will need to design a data analytic with justification of the collected data. (10%)

Q(2) Using appropriate descriptive analytics to overview the dataset. (20%)

Q(3) Justifying and applying appropriate data analytics techniques to predict/forecast a business outcome. (30%)

Q(4) With the references of academic articles or industrial report, analyse the management implications of implementing the business decision making you suggested. (30%)

Q(5) What are the limitations of your data analytics projects? (10%)

Reading beyond the course materials is vital. Use of graphs and diagrams to illustrate your analysis is encouraged. You are reminded that this assignment is about Business Analytics, not data science or statistics. The mathematical justification and specific number of analyses you applied is not as important as your ability to conduct a clear analysis of the business implications of those data analytics technique.

**Final remark: for those who construct a data sample by themselves, they will have the bonus marks (up to 10 points adjustment). However, they will need to discuss how to deal with the data ethical issues.**

Suggested structure of the data analysis report

* **A title of the report**
* The title should be informative and concise.
* **A brief Introduction**
* Provide brief background information of your chosen company and competitors;
* Highlight the objectives of the data analysis;
* A quick map/outline of the report (how the report is structured).
* **Main body – Methods, Results/Findings, Discussions**

*Data collection*

* + Describe the data collection process (e.g., what data is collected, what variables are selected and from which database etc.).

This is likely to cover part of your response to **Q(1);**

* + Illustrate steps for data cleaning and how the final sample is created (e.g., how did you deal with the missing values)

*Data description and summary*

* + Report the results for **Q(2) and Q(3)**
  + Present descriptive statistics of the key indicators required in **Q(2)** (e.g., mean, standard deviation, minimum/maximum values etc.) and relevant findings on the indicators.

*Results/Findings and Discussions*

* + Present and interpret data analysis results for **Q(3)**
  + Discuss findings based on the data evidence and the provided theory in the readings. Critically evaluate your model and results with wider literature. **Q(4) and Q(5)**
* **Conclusions**
* Summarize the major findings and your conclusions drawn from the data analysis.
* Identify the limitations of data analysis in the report and suggest for future research.
* **References**
* List the works or resources you have referred to in the report or used to research (e.g., books, academic articles, industry report, websites, etc.)
* Harvard style (reference list + in-text citations)
* **Appendix**

**\*\*You must include a Python notebook as an attachment.\*\***

Additional supporting information or research that is too detailed or not essential to be included in the main body (e.g., tables, charts, raw data, formulas, a glossary of terms used etc.)

The raw dataset and detailed calculation should not be presented in the appendix. If you are using your own dataset, please submit your raw materials via the data sample submission point. You don’t need to submit the raw dataset if you are using the instructor’s sample.

# Task-based Assignment Marking Scheme

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| --- | --- | --- | --- | --- |
| **Task Number** | **Distinction (>70%)** | **Merit (60-69%)** | **Pass (50-59%)** | **Fail (<50%)** |
| Q(1) –  Data Planning  (10%) | Outstanding levels of accuracy and technical competence in collecting and preparing data. | Shows clear evidence of planning and appropriate choice of data sources and methodologies for data collection and preparation. | Shows limited evidence of planning and selection from appropriate data sources, and data are prepared in a sound way but with obvious errors. | Fails to collect required data. Data are not appropriately prepared – no clear evidence of data cleaning process and criteria. |
| Q(2) – Descriptive Analysis  (20%) | * Excellent understanding of the data and key variables. * Calculations are accurate and complete. | * A solid understanding of the data and key variables. * Calculations are accurate and complete. | * A sound understanding of the data and key variables. * Calculations are largely accurate and complete, but with obvious errors. | * Lacks understanding of the data and key terms involved in the assignment. * A majority of calculations are wrong. |
| Q(3) – Predictive Analysis  (30%) | * Results are presented in a clear, precise, and systematic manner. * Conducts analysis highly effectively, using technical and/or professional skills as appropriate. | * Results are clearly presented with a good level of details. * Conducts analysis effectively, using appropriate techniques and skills. | * Results are presented clearly, but with obvious errors. * Provides evidence of relevant and sound analysis with some critical evaluation. | * Results presented are irrelevant, incorrect, or inaccurate. * Offers some appropriate analysis, but with some significant inconsistencies and areas of weakness which affect the soundness of arguments. |
| Q(4) & Q(5) – Discussion and Conclusion (40%) | * A rigorous use and a sophisticated understanding of relevant sources. * Develops an intelligent argument and articulates it with clear organisation and expression. * Shows significant abilities to synthesis and evaluate data and literature critically and make informed judgements. * Able to communicate at a very high- level arguments, evidence and conclusions to diverse audiences. | * A sound use and a comprehensive understanding of relevant sources. * Develops a focused and clear argument and articulates clearly and convincingly a sustained train of logical thought. * Shows sound synthesis and evaluation of data and literature and make informed judgements. * Able to communicate very effectively arguments, evidence, and conclusions to (non-)specialist audiences. | * Shows, in places, examples of a clear train of thought or use of sources. * Arguments and evidence are presented in an organised and appropriate manner. * Shows sound conclusions from evaluating the data and literature and make reasonable judgements. * Able to communicate effectively with a given audience. | * Misunderstandings of data and analytical techniques are evident. * Fails to develop an argument that relates to the question sets and/or the data. * Conclusions disconnect from data analysis and show limited synthesis and evaluation of data and materials. * Report is written in an inappropriate style and not presentable to laypersons. |

1. The word-limit INCLUDES the main body of the text, tables, illustrations and footnotes, but not the cover sheet, full list of references and appendixes. [↑](#footnote-ref-1)
2. Students must submit the assignment via Turnitin. [↑](#footnote-ref-2)
3. More information about the instructor’s data and the potential business questions associated with the data, please refer to the additional information of the assignment brief. [↑](#footnote-ref-3)