

BUS1001 – Data Analytics Concepts

Assignment 2: Create a data-driven solution to a business problem

Marks: 70 (Equivalent to 25% of the final grade)

Assignment Type: Individual

Overview

Throughout this subject, you have gained an understanding of business databases and useful skills to analyse and visualise data. This assignment will provide you with an opportunity to demonstrate how data analytics helps businesses to gain actionable insights and create data-driven solutions to a business problem through the database in **BUS1001-Ass2.xlsx**.

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Assignment Requirements

1. (20 marks) Write a short paragraph to answer each of the following questions:
 - a. Choose two attributes among the six key attributes of actionable insights; for each attribute, give two examples, one actionable insight and one unactionable insight and explain why it is actionable or unactionable. (Limit to 300 words)
 - b. Give a data analytics success story of a company (you cannot use those in Weeks 1 and 8) and explain how they use data in their success. (Limit to 200 words)
2. (20 marks) Given the product review scores of the two product categories, Bed_bath_table and Health_beauty, in the **Q2 worksheet** of the **BUS1001-Ass2.xlsx** file. Using the learnt **statistical analysis techniques with MS Excel** to provide answers/interpretations for the following questions.
 - a. (3 marks) What is the probability of having a product review score above 4.5 for a Bed_bath_table product? And for a Health_beauty product? (Hint: see Tasks 1 of Week 6)
 - b. (4 marks) What is the 95% confidence interval of the average review of a Bed_bath_table product? (Hint: see Task 1 of Week 7).
 - c. (5 marks) With 95% confidence, can one claim the average review of a Health_beauty product greater than 4? (Hint: see Task 3 of Week 7)
 - d. (8 marks) Apply hypothesis testing to find out whether one can claim Health_beauty products have a significantly higher average review than Bed_bath_table products with 95% confidence. (Hint: see Task 6 of Week 7)
3. (30 marks) The Becommerce company wants to conduct a marketing campaign to promote their products in one of their customer cities. They want to get an insight into their business so that they can come up with strategies for a successful campaign.

The **Order** worksheet in the **BUS1001-Ass2.xlsx** file records the order data of the company. You are required to analyse the provided data to support the company in deciding which customer city they should target, and which product category to promote. Visualise the result of your analysis in a dashboard, and give recommendations based on insights or findings uncovered from your analysis.

Specifically, you will:

- Formulate four analytics tasks/questions. For example, “what are the top ... that have the highest ...?”
- Analyse and visualise the results to answer the formulated questions. Then, create a dashboard to combine the created visualisations telling a story about the key patterns/insights that your analysis has discovered.

Hint: You should formulate many questions and then choose four that you can combine to create a good story in a dashboard. You should choose appropriate visualisation types to convey your messages (e.g., bar chart, line chart, pie chart, etc.). Apply visualisation best practices.
- Describe the insights shown in your visualisations.
- Recommend appropriate actions based on your insights so the company can have a successful marketing campaign.

Submission Guidelines

Your submission to this assignment is required to have **TWO FILES**:

- 1) A WORD file: Contains ALL the answers. The file should have 3 sections:
 - Section 1: Answers to two sub-questions of Question 1.
 - Section 2: Each answer for Question 2 must show working out step by step, and
 - Section 3: Describe the analytics questions, visualisations, insight of each visualisation, and recommendation that is backed up by your analysis.
- 2) An EXCEL file: Includes all the calculations that you show in the Word file for Questions 2 and 3. Note that if this file is missing or the content of this file does not match the answers in the WORD file, **NO MARK WILL BE AWARDED** for Questions 2 and 3.

Marking rubrics

The marker will use the following marking guide to assess your work. Please make sure you understand what you need to cover for each question in this assignment.

Submissions having a high similarity score will be considered plagiarism/collusion and will be reported to the Academic Integrity Advisors.

Question 1a - (10 marks)

Criterion	Standard exceeded	Standard met	Standard not met
	8-10: <ul style="list-style-type: none">- Excellent coverage of the required information relating to the task.- Acceptably low level of grammar and spelling errors Does an excellent job of drawing readers through.	4-7 <ul style="list-style-type: none">- Reasonable coverage of the required information relating to the task.- Some grammar and spelling errors. Readers can get through with some difficulties.	0-3 <ul style="list-style-type: none">- Has Little or no meaningful information relating to the task.- Significant grammar and spelling errors.- Not draw readers through.

Question 1b - (10 marks)

Criterion	Standard exceeded	Standard met	Standard not met
	8-10: <ul style="list-style-type: none">- Excellent coverage of the required information relating to the task.- An appropriate level of references.- Acceptably low level of grammar and spelling errors- Does an excellent job of drawing readers through.- Correct reference style	4-7 <ul style="list-style-type: none">- Reasonable coverage of the required information relating to the task.- Limited references.- Some grammar and spelling errors.- Readers can get through with some difficulties.- Correct reference style	0-3 <ul style="list-style-type: none">- Has Little or no meaningful information relating to the task.- No reference.- Significant grammar and spelling errors.- Not draw readers through.- Incorrect reference style

Question 2 - (20 marks)

A full mark is given for each correct question with a step-by-step answer. Half of the mark will be given for something close.

Question 3 - (30 marks)

Criterion	Standard exceeded	Standard met	Standard not met
Creative problem-solving – Formulate analytics tasks/questions (6 marks)	5-6 - Formulate clear analytics tasks/questions - Provide logical/reasonable arguments to why you want to ask the questions.	3-4 - Formulate clear analytics tasks/questions - No or illogical/unreasonable arguments to why you want to ask the questions.	0-2 - Makes little or no attempt to formulate the analytics tasks/questions.
Data analysis and Visualisations (Comprise at least 4 charts and 1 dashboard) (18 marks)	13-18: - Provide correct analysis and visualisations to answer the formulated analytics questions. - Show a comprehensive and effective dashboard for your data story. - Have appropriate choices of visualisations. - The visualisations are well-designed and formatted to convey the message/insight.	7-12: - Provide correct analysis and visualisations to answer the formulated analytics questions. - Missing an effective dashboard for your data story. - Not all visualisation choices are appropriate. - A reasonable effort in designing and format the visualisation.	0-6 - The analysis and visualisations donot relate to the formulated analytics task. - Wrong calculations.
Data interpretation – Insights and recommendations (6 marks)	5-6: - Has excellent logic flow. - The insights and recommendations are well-supported and well-reasoned based on the visualisations. - Assumptions noted.	3-4: - Moderate quality of logic. - The insights and recommendations are aligned with the visualisations but missing elements or assumptions that lead readers to doubt the quality of the solution.	0-2: - Has no or poor logic flow. - The insights and recommendations are not supported by the visualisations.