



STRATHMORE INSTITUTE OF MATHEMATICAL SCIENCES

MASTER OF SCIENCE IN DATA SCIENCE AND ANALYTICS

END OF SEMESTER EXAMINATION

DSA 8402: COMMUNICATION STRATEGIES FOR ANALYTICS

DATE: 10TH DECEMBER, 2024

TIME: 3 Hours

### INSTRUCTION

There are three questions in this exam, all questions are required but questions one and three have two options to choose from. Important Notes:

- You may use the data visualization tool of your choice including Excel, Google Sheets, Tableau, PowerBI or other.
- Export (if applicable) and share your dashboard image(s) or link, code and underlying data as a workbook /worksheet I have access to and can comment on ([cnjunge@strathmore.edu](mailto:cnjunge@strathmore.edu))
- To complete your submission, share your exam with the links or attachments as instructed by the invigilator to the corresponding submission site.

QUESTION I: Answer either of the questions in this section.

(1.) **Player Readiness Dashboard.** You have been hired as a consultant for Next Talent University, an international university which seeks to understand and improve the performance of their sports teams. The dataset below is drawn from surveying their football team to check their readiness to engage in practice and match activity over several seasons. The 'readiness score' provided is a score between 0-100 calculated by software application taking into account the athletes training workload and the other data provided including: Fatigue, Mood, Soreness, Stress and Sleep Quality (all recorded within a range of -3 being the lowest score, and '3', being the highest score). Sleep hours and other player demographic information are provided.

- a. Create a data dashboard for Next Talent University comprising at least four charts. Add a title to the dashboard and each chart, and do whatever formatting and editing is necessary to make the dashboard functional and visually appealing. Include a one paragraph narrative summarizing what the dashboard shows.

(30 points)

<https://docs.google.com/spreadsheets/d/1eAPI6Tey6yHUWa84cuBczX2AbDDof3aH/edit?usp=sharing&oid=104253394941702640723&rtpof=true&sd=true>

OR

(2.) **Building a Customer Data Dashboard.** The African Retail Foundation (ARF) is a not-for-profit organization dedicated to serving retailers. ARF needs to develop a data dashboard to monitor its customer activity and its interactions with potential customers. Management is concerned primarily with the number and dollar value of purchases, the number of legacy customers (those who have purchased in the past twelve months) and new potential customers solicited, and the number of solicitations that result in a purchase. They want to compare these results across ARF's four marketing officers (Randall Shalley, Donna Sanchez, Marie Lydon, and Hoa Nguyen) by date and mode of contact (telephone, email, or personal meeting). ARF has collected data for each solicitation initiated last year from its relational database. These data include the solicitation number, development officer, date of solicitation, mode of solicitation, whether the solicitation resulted in a donation, and whether the solicited potential customer was a legacy customer. ARF also added a field for the month in which the solicitation was made.

- a. Create a dashboard for ARF highlighting the KPI and some way to drill down to areas/subjects of interest. Add a title to the dashboard, and do whatever formatting and editing is necessary to make the dashboard functional and visually appealing. (23 points)

<https://docs.google.com/spreadsheets/d/1XTjH8nG4biCMhN5v6HmZ9FWFupbqRszA/edit?usp=sharing&oid=104253394941702640723&rtpof=true&sd=true>

- b. The file *ARFNewData* contains 15 entries for the past year that were not originally entered into the relational database before the data for this dashboard was retrieved. Add these data to the *ARFData* table and refresh your dashboard. Comment on differences between the resulting dashboard and the dashboard you created previously. (7 points)

<https://docs.google.com/spreadsheets/d/1dtUp8QxbeJZu8QM1624bxPeCgOnln9l/edit?usp=sharing&oid=104253394941702640723&rtpof=true&sd=true>

QUESTION II:

3. You have been invited by an international bank based in Kenya to give a talk on communication strategies for data analytics. Specifically you have been asked to discuss the following:

- a) The benefits of a data fluent organization and the different roles and responsibilities in a data fluent organization, and how this may benefit an international bank.
- b) How AI can be useful in addressing the challenges of an international bank's operations.

Write down your speech including the key points you would discuss and limit your response to one or two pages. (20 points)

QUESTION III: Answer either of the questions in this section.

4. Consider the videos and guest speakers we had for the class (including videos and articles provided for you to watch and read). Highlight two or three of the biggest takeaways from them. What is one question that remains unanswered? (Keep your answer to one or two pages. (10 points)

OR

5. **Laptop Sales.** The file *Laptop* contains data on the monthly sales revenue for a laptop manufacturer. (10 points)

- a. Create a line chart to depict the sales time series at the annual level.
- b. Create a line chart to depict the sales time series at the quarterly level.
- c. Create a line chart to depict the sales time series at the monthly level.
- d. What insight do each of these three views provide?

<https://docs.google.com/spreadsheets/d/1gwROOudjS6wXHDkNBuGD6fG6SMbuZTPS/edit?usp=sharing&oid=104253394941702640723&rtpof=true&sd=true>