Strathmore
UNIVERSITY

STRATHMORE INSTITUTE OF MATHEMATICAL SCIENCES

MASTER OF SCIENCE IN DATA SCIENCE AND ANALYTICS

END OF SEMESTER EXAMINATION

DSA 8402: COMMUNICATION STRATEGIES FOR ANALYTICS

DATE: 17th OCTOBER, 2022 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)
- 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.

- You can receive 75% of the questions' points by answering question (1)
- Or 100% by answering question (2).

(1.) **Building a Personal Fitness Data Dashboard**. Late last year, Veronica Camp learned she is pre-diabetic. Her physician recommended that she immediately begin exercising regularly and limiting her calorie intact to approximately 1500 calories per day. Her physician also advised her to monitor her systolic and diastolic blood pressure, heart rate, and blood glucose daily. On January 1, Veronica began exercising three times a week for approximately 30 minutes, and she started

monitoring her calorie intake at meals with an app she downloaded. She also started monitoring her systolic and diastolic blood pressure, heart rate, and blood glucose daily. She has created a database with these data recorded on a daily basis through November.

a. Create a data dashboard for Veronica comprising at least four charts. Add a title to the dashboard, and do whatever formatting and editing is necessary to make the dashboard functional and visually appealing. (30 points)

https://docs.google.com/spreadsheets/d/1e1yybciWr9Ku0_xvujPCcNvCFnITNtt_AskT1YMaIDE/edit?usp=sharing

OR

(2.) **Building a Donor Data Dashboard**. The American Retriever Foundation (ARF) is a not-for-profit organization dedicated to health issues faced by the six distinct retriever breeds (Chesapeake Bay, curly-coated, flat-coated, golden, Labrador, and Nova Scotia duck tolling). ARF needs to develop a data dashboard to monitor its donor activity and its interactions with potential donors. Management is concerned primarily with the number and dollar value of donations, the number of legacy donors (those who have donated in the past twelve months) and new potential donors solicited, and the number of solicitations that result in donations. They want to compare these results across ARF's four development 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 donor was a legacy donor. ARF also added a field for 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&ouid=104253394941702640723&rtpof=true&sd=true

b. The file *ARFNewData* contains 15 entries for the past year that were not originally entered into the relational data base 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/1dtUp8QxbeJZu8QM1624bxPeCqOnI-n9l/edit?usp=sharing&ouid=104253394941702640723&rtpof=true&sd=true

QUESTION II:

3. You have been invited by a multinational organization based in Kenya to give a talk on communication strategies for data analytics. Specifically you have been asked to discuss the benefits of a data fluent organization and the different roles and responsibilities in a data fluent organization. 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 guest speakers we had for the class. 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. **Smartphone Sales.** The file *Smartphone* contains data on the monthly sales revenue for a smartphone 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&ouid=104253394941702640723&rtpof=true&sd=true