Assignment Code: DA-AG-013

Introduction to Power BI, Charts, DAX & Creating Reports

Instructions:

- Carefully read each question. Use **Google Docs**, **Microsoft Word**, or a similar tool to create a document where you type out **each question along with its answer**.
    - For **theoretical questions**, write clear and concise answers.
    - This assignment covers Power BI from basics to advanced concepts (visualizations, data modeling, and DAX).
    - Use the **Sample Superstore** dataset throughout.
    - Use screenshots to support your answers for practical and scenario-based tasks.
    - Submit your assignment as a PDF (do not zip the files).
    - Each question carries **20 marks**.

DATASET LINK : Global_superstore2

Total Marks: 200

Question 1 :

Define Power BI and What are the key components of the Power BI ecosystem? Briefly explain:

- Power BI Desktop
- Power BI Service
- Power BI Mobile
- Power BI Gateway

Answer :

Question 2 :

Compare the following Power BI visuals:

- Pie Chart vs Donut Chart
- Bar Chart vs Column Chart
  When would you prefer one over the other? Give one example for each pair.

Answer :

Question 3 :

Explain the significance of:

- Star schema vs Snowflake schema
- Primary key vs Foreign key in relationships (Power BI)
  Why is cardinality important?

Answer :

Question 4 :

Differentiate between:

- Calculated column vs Measure
  Also, define Row context and Filter context with simple examples.

Answer :

Question 5:

What is the difference between a report and a dashboard in Power BI?

Answer:

Question 6 :

Using the Sample Superstore dataset:

- Create a **Clustered Bar Chart** to display `Total Sales by Sub-Category`
- Create a **Donut Chart** for `Sales % by Region`
  Provide screenshots of both visuals.

DATASET LINK : Global_superstore2

Answer :

Question 7 :

Write and apply the following measures:

- Total Profit = SUM([Profit])
- Average Discount = AVERAGE([Discount])
  Display both in a KPI Card, and use a Line Chart to show profit trend over months.
  Add visuals and DAX formulas.

DATASET LINK : Global_superstore2

Answer :

Question 8 :

Implement a DAX measure that calculates the percentage of total sales by product category.

Product_category	Sales_Amount
Electronics	5000
Clothing	3000
Home Appliances	7000
Books	2000

Tables & Chairs	8000
Toy	1500
Sports Equipment	1200
Office Supplies	1000
Beauty Products	4400
Garden Supplies	1000
Jewelry	1800
Automative	2600

Answer :

Question 9 :

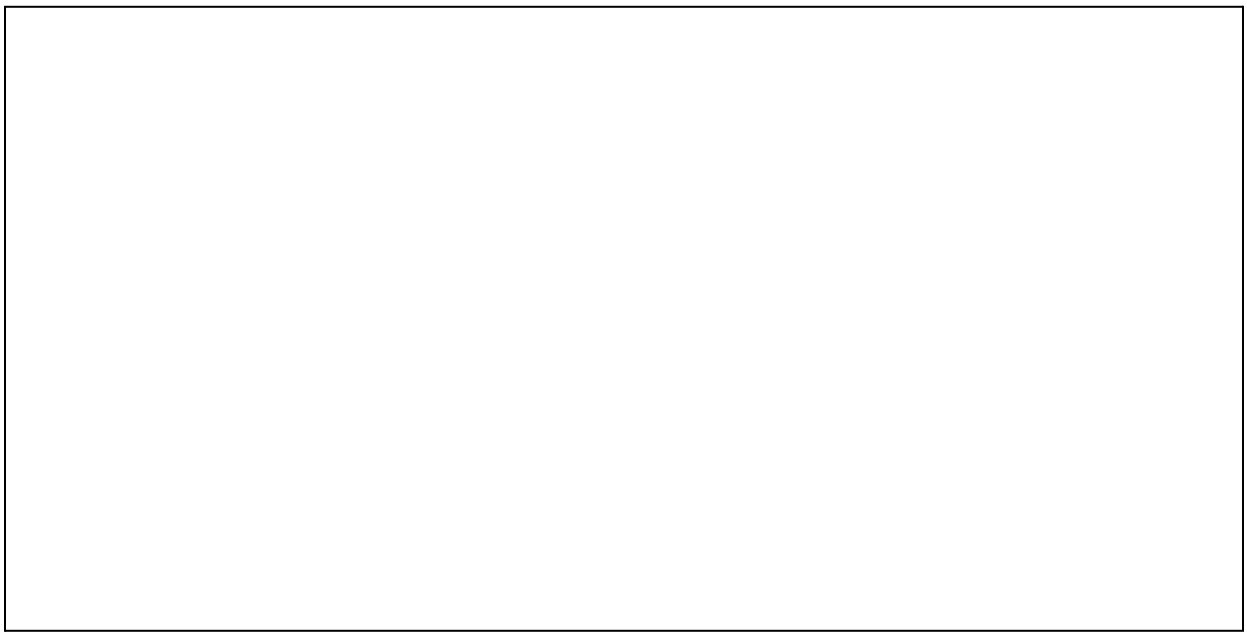
- **Create a DAX Measure** for **Total Profit**
- Use it in a **Waterfall Chart** to analyze how different `Sub-Categories` contribute to overall profit

- Add a **Slicer** for `Region` to filter the visual
- Write brief business insights (4–5 lines) from the chart and provide **2–3 data-driven recommendations** to improve profit.

Provide a steps, screenshot of the Waterfall chart and the DAX formula

DATASET LINK : Global_superstore2

Answer :



Question 10 :

Scenario:
VitaTrack Wellness, a digital health company in FitZone, has collected data on users' daily habits and health vitals. The analytics team is tasked with drawing actionable insights from this data to **improve lifestyle suggestions and prevent heart-related risks**.

Your Task:

Using the provided dataset (includes Age, Gender, BMI, Steps, Calories, Sleep, Heart Rate, Blood Pressure, Smoking, Alcohol, Exercise, Diabetic & Heart Disease status):

Build a one-page Power BI dashboard that answers:

1. Are users maintaining a balanced lifestyle (Steps, Sleep, Calories)
2. What lifestyle patterns (Smoking, Alcohol, BMI, etc.) indicate heart disease risk?
3. Is there any visible relationship between Sleep and Physical Activity?
4. How does BMI vary across Age Groups and Genders?
5. What is the impact of smoking and alcohol on heart rate and blood pressure?
6. Segment people based on their health activity to suggest lifestyle changes

DATASET LINK: Health_activity_data

Answer: