COURSE 5 - VISUALIZATION TOOLS - TABLEAU

FINAL ASSESSMENT (15/04/2024)

INSTRUCTIONS FOR THE LAB ASSESSMENT:

Please read carefully and understand the total number of questions, the time allocated for each question, and the duration of the lab assessment.

- Total number of Questions: 1
- Duration of lab assessment: 100 Minutes (1 hour 40 minutes)
- Total Number of Marks: 100
- **Important Notes:**
  - ❖ Please read through the entire assignment before starting your work.
  - ❖ Work Independently, no collaboration or referring to notes or browsing, etc…,
  - ❖ The given data is sample data that you need to use to develop Tableau dashboard.
  - ❖ Submit your answers Dashboard questions in Tableau **(.twb)** format.

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Introduction:

As a member of the Sales and Revenue Analysis team, your role involves dissecting and interpreting a comprehensive dataset reflecting the sales dynamics across various regions, countries, and product categories. This dataset encompasses crucial metrics such as region-wise sales performance, revenue generation, and profitability indicators. Your primary objective is to conduct a thorough analysis to uncover patterns, trends, and actionable insights that can drive strategic decision-making and enhance sales effectiveness.

DATA:

Attached to the email is a data set titled 'sales_data.csv'. The provided dataset comprises comprehensive sales data spanning various regions, countries, and product categories, along with essential metrics such as revenue, cost, and profit. It offers a rich source of information for analyzing sales performance, identifying key trends, and optimizing revenue generation strategies.

SALES DATA:

- **Region**: Geographic location where sales transactions occur.
- **Country**: Specific country within the defined regions.
- **Item Type**: Classification of the sold products or services.
- **Sales Channel**: Channels through which sales are conducted (e.g., online sales, offline sales).

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- **Order Priority**: Priority level assigned to orders (e.g., high, medium, low, critical).
- **Order Date**: Date when the order was placed.
- **Order ID**: Unique identifier for each sales order.
- **Ship Date**: Date when the order was shipped.
- **Units Sold**: Quantity of units sold per transaction.
- **Unit Price**: Price of each unit sold.
- **Unit Cost**: Cost incurred per unit.
- **Total Revenue**: Overall revenue generated from the sales.
- **Total Cost**: Total cost incurred in fulfilling the orders.
- **Total Profit**: Net profit derived from the sales transactions.

LAB ASSESSMENT :

- **Data Preprocessing:**
  - Perform data cleaning tasks, such as handling missing values and duplicates if needed.
  - Transform the data into a format suitable for tableau, ensuring proper data types.

- **Key Metrics**
  - Compute the total revenue generated from all sales transactions in the dataset.

- Calculate the total cost incurred in fulfilling all the orders, considering the unit cost and quantity of units sold for each transaction.
- Analyse the impact of dynamic pricing strategies by computing the average unit price for each product type across different sales channels and comparing it to static pricing scenarios.
- Compute the inventory turnover ratio for each product type, considering the average units sold and the average inventory level, and assess its impact on cash flow and profitability.
- Calculate the profitability index for each segment, and determine the most profitable customer segments for targeted marketing strategies.

- **Visualisations:**
  - Create a Visual that displays the total revenue, total cost, and total profit for each region. Allow users to filter the dashboard by specific time periods (e.g., month, quarter, year) to analyse regional sales performance over time.
  - Compare the sales performance of different product types across regions. Include visualisations such as bar charts or treemaps to show the distribution of sales revenue by product type, allowing users to drill down into specific regions for detailed analysis.
  - Develop a Visual that evaluates the effectiveness of different sales channels (e.g., online, offline) in generating revenue and profit. Incorporate visualisations such as stacked bar charts or line graphs to illustrate the contribution of each sales channel to total sales over time.

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- Examine the relationship between order priority and sales performance. Utilise scatter plots or heatmaps to visualise the correlation between order priority levels (e.g., high, medium, low, critical) and metrics such as total revenue or total profit.
- Identify the top-performing countries in terms of total revenue or total profit. Use bar charts or pie charts to display the contribution of each country to overall sales performance, allowing users to prioritise resources and strategies for high-potential markets.

The marks for the Visualization answers will be given based on the 8 expectations provided in the below table.

	Expected in Dashboard	Marks
1.	**Data Connection and Cleaning**	10
	Appropriateness and cleanliness of data sources.	
	Efficient data connections.	
	Proper data cleaning and preprocessing.	
2.	**Data Visualization Techniques**	20
	Effective use of charts (e.g., bar charts, line charts, scatter plots, etc.).	
	Proper selection of visualization types for different data types.	
	Clarity and effectiveness of visualizations in communicating insights.	
3.	**Calculated Fields**	10
	Complexity and relevance of calculated fields.	
	Correctness of calculations.	
	Innovative use of calculated fields to derive insights.	

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4.	**Dashboard Layout and Design**	15
	Overall design aesthetics.	
	Consistency in design elements.	
	Attention to detail in layout and spacing.	
5.	**Interactivity and Parameters**	15
	Use of parameters to allow user interaction.	
	Implementation of filters, parameters, and dynamic actions.	
	Responsiveness of the dashboard to user inputs.	
6.	**Storytelling and Narrative Flow**	15
	Clear narrative structure guiding users through the dashboard.	
	Effective use of annotations and text to provide context.	
	Logical flow of information leading to insights.	
7.	**Performance and Optimization**	10
	Dashboard load time and performance.	
	Efficient use of Tableau features to optimize performance.	
	Consideration of scalability for larger datasets.	
8.	**Page Navigation and Drill-Down**	5
	Implementation of navigation features for exploring different aspects of the data.	
	Intuitive drill-down functionality for deeper analysis.	
	Total	100