Project Brief: Bank Marketing Campaign Analysis for Data Analytics Elites (DAE)

Greetings from the Data Analytics Elites (DAE). In your role as a newly appointed Data Analyst, you will play a crucial role in our endeavors to unravel insights embedded in our marketing campaign data. DAE is committed to enhancing customer engagement and optimizing marketing strategies through the strategic application of data-driven analyses. Your responsibility is to meticulously analyze our data, uncover trends, comprehend client behaviors, and provide valuable insights to inform strategic decision-making processes.

Objective:

To analyze and visualize the performance of marketing campaigns and predict client subscription to term deposits using SQL, providing actionable insights for business improvement.

Task: Marketing Campaign Analysis and Visualization using SQL

Data Preparation:

- Import the dataset into a SQL database.
- Clean the dataset if needed (handle missing values, duplicates, etc.).
- Ensure proper data types for each column.

Campaign Performance Overview:

- Create a summary table that shows the total number of contacts, average campaign duration, and subscription rate.
- Use SQL queries to calculate these metrics.

Monthly Campaign Trends:

- Create a SQL query to display the monthly trends in client contacts for the entire dataset.
- Break down the subscription rates by month using SQL aggregations.

Client Demographics Analysis:

- Generate a SQL query to compare the subscription rates across different job categories.
- Highlight the top-performing and bottom-performing job categories.

Contact Duration Analysis:

- Create a SQL query to analyze the relationship between contact duration and subscription success.
- Use appropriate SQL functions to categorize and highlight different job categories.

Client Segment Analysis:

- Calculate the subscription rates for different age groups and education levels using SQL.
- Use SQL queries to visualize the contribution of each segment to the overall subscription rate.

Interactive Dashboard (Bonus):

- Create views and stored procedures that can be used to build an interactive dashboard in a BI tool like Tableau or Power BI, where users can select a specific job category and see detailed information about its campaign performance.

Evaluation Criteria:

Participants will be evaluated based on the following criteria:

- Accuracy and completeness of data analysis.
- Effectiveness of SQL queries and their efficiency.
- Clarity and organization of the SQL code.
- Creativity in presenting insights and recommendations.
- Efficient use of SQL functions and features.

Submission Requirements:

Participants are required to submit:

SQL Script containing:

- Cleaned and prepared data tables.
- Summary tables and SQL queries as specified in the task.
- Any additional insights or observations drawn from the analysis.

Documentation:

- Comprehensive documentation detailing data sources, methodologies, and actionable insights.

Social Media Post Link:

- A social media post on Twitter and LinkedIn, sharing your experience during the project, the challenges faced, and how you overcame them.

Timeline:

- **Deadline:** 15 days after project initiation.
- **Submission Mode:** Google Forms

Data Dictionary:

- **age:** Age of the client (numeric).
- **job:** Type of job (categorical: "admin.","unknown","unemployed","management","housemaid","entrepreneur","student","blue-collar","self-employed","retired","technician","services").
- **marital:** Marital status (categorical: "married","divorced","single"; note: "divorced" means divorced or widowed).
- **education:** Education level (categorical: "unknown","secondary","primary","tertiary").
- **default:** Has credit in default? (binary: "yes","no").
- **balance:** Average yearly balance, in euros (numeric).
- **housing:** Has housing loan? (binary: "yes","no").
- **loan:** Has personal loan? (binary: "yes","no").
- **contact:** Contact communication type (categorical: "unknown","telephone","cellular").
- **day:** Last contact day of the month (numeric).
- **month:** Last contact month of year (categorical: "jan", "feb", "mar", ..., "nov", "dec").
- **duration:** Last contact duration, in seconds (numeric).
- **campaign:** Number of contacts performed during this campaign and for this client (numeric, includes last contact).
- **pdays:** Number of days that passed by after the client was last contacted from a previous campaign (numeric, -1 means client was not previously contacted).
- **previous:** Number of contacts performed before this campaign and for this client (numeric).
- **poutcome:** Outcome of the previous marketing campaign (categorical: "unknown","other","failure","success").
- **y:** Has the client subscribed a term deposit? (binary: "yes","no").

This task is designed to challenge participants to use intermediate-level SQL skills to analyze and present meaningful insights from the Bank Marketing Campaign dataset.

Good luck, and we look forward to seeing your outstanding analysis and presentations!