📘 **Project Report: Banking Campaign Analysis**

Dataset Source: Portuguese Banking Institution
Tools Used: SQL Server, Power BI
Scope: To uncover actionable insights from a direct marketing campaign through structured EDA and visualization

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🎯 **Objective**

To analyze data from a telemarketing campaign targeting Portuguese banking customers. The campaign involved contacting clients via phone calls to promote term deposits. The goal was to uncover demographic patterns, evaluate campaign performance, and recommend strategies for improved customer engagement and conversion.

🗂️ **Methodology**

1. **Data Loading & Transformation:**

   o Cleaned and structured CSV dataset was imported into SQL Server.

   o Created a normalized schema via banking_scheme.sql.

   o Added calculated columns such as AgeGroup, DurationGroup, and PriorContactStatus for better segmentation.

2. **Exploratory Data Analysis (EDA):**

   o SQL queries were executed to extract demographic trends, conversion rates, and campaign effectiveness.

   o DAX formulas were used in Power BI for dynamic measures and aggregations.

3. **Power BI Dashboard:**

   o Designed multiple interactive visuals:

      ▪ KPI Cards

      ▪ Bar and Pie Charts

      ▪ Clustered Columns and Matrix Tables

      ▪ Slicers for job, education, month, and outcome

🔍 **Key Insights**

👩 **Demographics & Client Profile**

- **Age Distribution:** Most clients fall between **30–49 years**, showing the campaign targeted working-age individuals.

- **Job Types:** The top 3 client occupations were **blue-collar, management, and technician**.

- **Loan Ownership:**

  - ~16% had personal loans.

  - ~45% had housing loans — possibly indicating long-term clients.

- **Education:** Clients with **tertiary education** had a higher average balance and better conversion rate.

📞 **Campaign Engagement**

- **Call Duration:** Calls longer than **5 minutes** were **significantly more likely** to result in a subscription.

- **Contact Method:**

  - **Cellular** yielded the highest conversion rates.

  - **Telephone** and **unknown** methods underperformed.

- **Seasonal Trends:** Most successful contacts occurred in **May, August, and October**.

- **Contact Frequency:** Clients contacted **once** converted more than those contacted **multiple times**, hinting at possible fatigue or annoyance.

🎯 **Campaign Performance**

- **Overall Conversion Rate:** ~11.7% of clients subscribed (y = yes).

- **Marital Status & Conversion: Single clients** had slightly higher subscription rates.

- **Poutcome Impact:**
    - Clients with a previous outcome of **success** showed much higher current conversion rates (~65%) than those with **failure or unknown**.

- **Contact History:** Clients **not previously contacted** (pdays = -1) had a higher likelihood of conversion.

🧠 **Advanced Insights**

- **Age vs Balance:** Subscribed clients were generally **middle-aged (30–50)** with higher average balances.

- **Education & Job Combination:** Clients in **management roles with tertiary education** had the **highest conversion likelihood**.

- **Loan Status:** Clients **without loans** (personal or housing) were more likely to subscribe — possibly due to fewer financial obligations.

✅ **Recommendations**

1. **Refine Targeting Criteria:**
    - Focus on **30–49-year-olds** in **management/technician roles** with **higher education**.
    - Prioritize clients **without existing loans**.

2. **Optimize Contact Strategy:**
    - Limit follow-up calls to avoid diminishing returns.
    - Prioritize **longer, quality conversations** for better results.

3. **Leverage Past Campaign Data:**
    - Clients with **positive past outcomes** should be high priority leads.
    - Consider excluding "failure" outcomes in follow-up campaigns.

4. **Channel Strategy:**
    - Focus resources on **cellular communication**.
    - Reassess effectiveness of landlines and unknown methods.

5. **Time Campaigns Smartly:**
    o Allocate more efforts during **May, August, and October**.
    o Monitor weekday trends to optimize outreach timing.