Analyzing Client Subscription to Term Deposits

Insights from a Direct Marketing Campaign

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What kind of dataset are we dealing with?

Objective: To predict if a client will subscribe to a bank term deposit based on a telephonic marketing campaign.

Data Source: Direct marketing campaign data from a Portuguese banking institution.

Key Variables:

- Client demographics (age, job, marital status).
- Financial details (balance, loans).
- Campaign details (contact type, duration, number of contacts).
- **Target Variable:** y (Term Deposit Subscription - Yes/No).

Who are Our Clients?

Age: The majority of clients are between 30 and 40 years old. The dataset has a wide age range, but the core target seems to be in this group.

Jobs: The most common job types are blue-collar, management, and technicians. This tells us a lot about the primary customer base.

Marital Status: A large majority of clients are married, followed by single individuals.

Client Financial Profile

Average Balance: The average yearly balance is skewed, with most clients having a relatively low balance. A few clients have very high balances.

Loans:

- A significant number of clients **have a housing loan**.
- A smaller proportion of clients **have a personal loan**.

The Marketing Campaign's Approach

Contact Type: The campaign primarily used cellular phones and landlines to contact clients.

Timing:

- The most active month for contacts was **May**, followed by July and November.
- Contacts were distributed throughout the month, with no single day standing out dramatically.

Contacts Per Client: Most clients were contacted only once during the campaign. The number of contacts decreases sharply with each subsequent attempt.

Insights from Past Campaigns

Previous Contacts: The vast majority of clients had **no prior contact** from a previous campaign.

Outcomes: For clients with a known previous outcome, the outcomes were more often 'failure' or 'other' than 'success'. This suggests an opportunity for improvement.

The Main Result: Term Deposit Subscriptions

Outcome: The dataset is highly imbalanced.

Result: Only a small percentage of clients (**~11.7%**) subscribed to the term deposit.

Conclusion: This is a low conversion rate, highlighting the need for better targeting.

What Correlates with Success?

Key Finding: The **duration of the last contact** is the single strongest positive correlation with a client subscribing to a term deposit.

- This suggests that longer, more engaged conversations are crucial for a successful outcome.

Other Factors: Campaign (number of contacts) has a negative correlation, meaning more calls did not lead to more subscriptions.

Conclusions and Recommendations

Conclusion: Client demographics alone are not strong indicators of subscription. The most important predictor is the **quality of the conversation** (measured by duration).

Recommendations:

1. **Focus on Quality, Not Quantity:** Train agents to have more in-depth conversations rather than making a high volume of short calls.

1. **Targeted Outreach:** Use data to identify clients who are most likely to respond positively and focus resources on them.
2. **Further Analysis:** Investigate other factors like call timing, agent performance, or a client's past loan history to see if they can improve predictions.

Thank you !!

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