

Week 10- Bank Marketing Campaign Project

Team member's details :

Name	Email	Country	College/Company	Specialization
Leena Ganta	leenarganta@gmail.com	USA	North Carolina State University	NLP
Najma Abdi	abdinajma225@gmail.com	KENYA	University of Nairobi	DATA SCIENCE
Adama	adamal.sall@gmail.com	SAUDI ARABIA	University Of Suffolk	BSc Honours Computer Science(AI and Data Science)

Problem description:

ABC Bank is planning to launch a new term deposit product and wants to predict which customers are likely to subscribe based on their past interactions with previous marketing campaigns. By developing a machine learning model, the bank aims to identify high-probability prospects in advance, allowing the marketing team to focus its efforts where they are most likely to succeed. This targeted approach will help reduce overall campaign costs while improving conversion rates.

However, the dataset exhibits a class imbalance (most customers don't subscribe) and certain highly predictive features, such as 'duration', can't be used for real-time targeting.

The goal is to develop and compare ML models (with and without the 'duration' feature) in order to:

- Improve the precision of campaign targets.
- Reduce the operational costs of telemarketing and messaging.
- Convert ML model metrics into insights that business stakeholders can understand.

The main goal is to enable cost-efficient, data-driven campaign targeting with measurable business impact.

Github Repo link: https://github.com/leenarganta/bank_marketing_campaign

EDA Performed on Data:

https://github.com/leenarganta/bank_marketing_campaign/blob/main/Untitled.ipynb

Final Recommendation:

From our EDA insights, we recommend the following action to optimize the campaign.

1. Limit Contact of Customers Attempts

- Cap outreach at 5–10 contacts per lead.
- Implement suppression rules after repeated contact.

2. Focus on High-Conversion Months

- Prioritize March, September, and October.
- Reduce or revise efforts in May.

3. Balance Campaign Load

- Evenly distribute contact volume across the year.
- Rotate target segments monthly to avoid fatigue.

4. Use Behavioral Triggers

- Target based on recent engagement (**pdays** (Number of days since the client was last contacted from a previous campaign)).
- Time follow-ups to leverage recency effects.

5. Test Content & Offers

- A/B test messaging across months (e.g., May vs. September).
- Personalize offers by segment or customer stag