



# BANK DIRECT MARKETING PROJECT

## Proposal Presentation

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- Prashant Kumar Ojha | C20018



# Table of contents

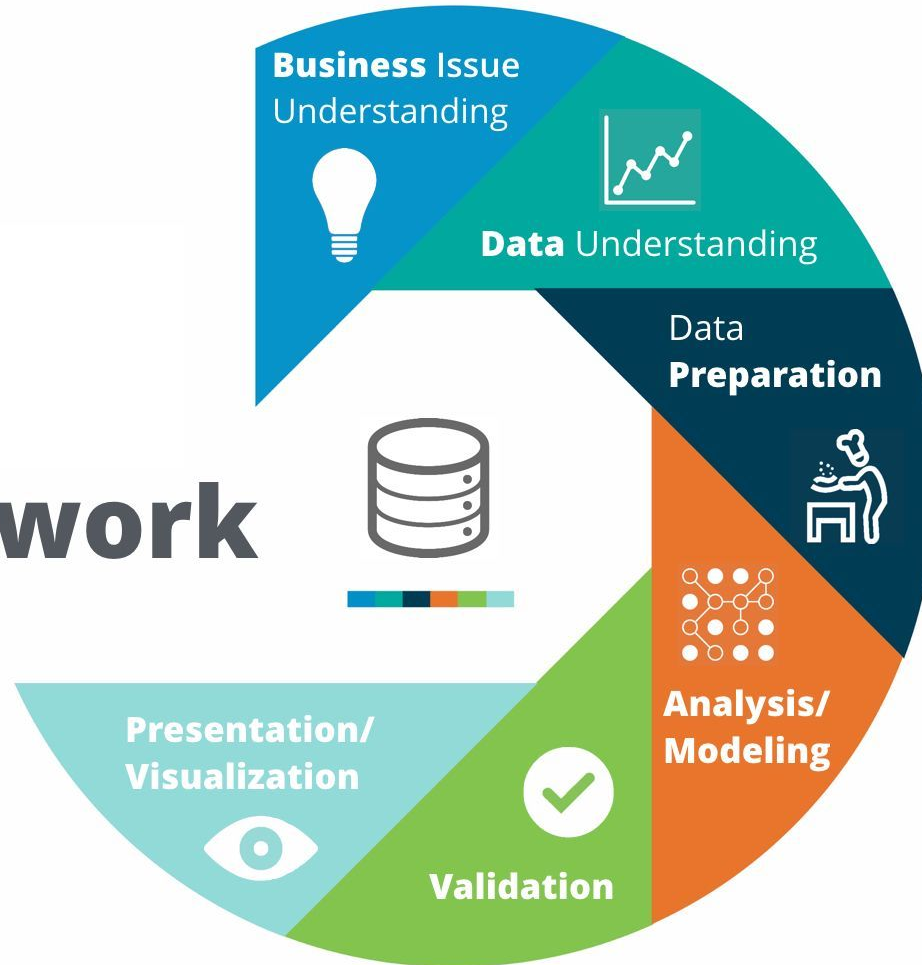
## Proposal Presentation

- ▶ **01** Background Context
- ▶ **02** EDA Insights
- ▶ **03** Conclusions
- ▶ **04** Recommendations

# Background Context



# Framework





## Background

A **Term Deposit** is a deposit held at a financial institution that has a fixed term. These are generally short-term with maturities ranging anywhere from a month to a few years. When a term deposit is purchased, the lender (the customer) understands that the money can only be withdrawn after the term has ended or by giving a predetermined number of days notice. **Term deposits are an extremely safe investment** and are therefore **very appealing to conservative, low-risk investors**.



# Business Understanding

There has been a **revenue decline** for the Portuguese bank and they would like to know what actions to take. After investigation, we found out that **the root cause is that their clients are not depositing as frequently as before**. Knowing that term deposits allow banks to hold onto a deposit for a specific amount of time, so banks can invest in higher gain financial products to make a profit.

In addition, banks also hold better chance to persuade term deposit clients into buying other products such as funds or insurance to further increase their revenues. **As a result, the Portuguese bank would like to identify existing clients that have higher chance to subscribe for a term deposit and focus marketing effort on such clients**

# Problem Statement

*Increase the effectiveness of the bank's telemarketing campaign*

This project will enable the bank to develop a more granular understanding of its customer base, predict customers' response to its telemarketing campaign and establish a target customer profile for future marketing plans.

***Analytics Objectives : A classification approach to predict which clients are more likely to subscribe for term deposits.***



# DATA INSIGHTS



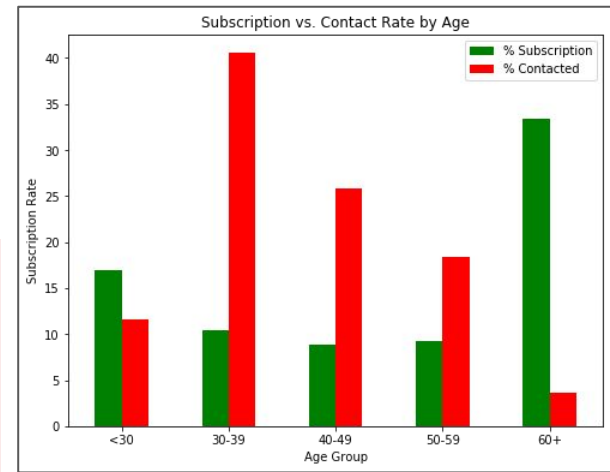


# EDA INSIGHTS

## Insights: target the youngest and the oldest instead of the middle-aged

- It is not surprising to see such a pattern because the main investment objective of older people is saving for retirement. Term deposits, as the least risky investment tool, are more preferable to the eldest.
- Term deposits provide liquidity and generate interest incomes that are higher than the regular saving account, so term deposits are ideal investments for students.

However, red vertical bars show that the bank focused its marketing efforts on the middle-aged group, which returned lower subscription rates than the younger and older groups. Thus, to make the marketing campaign more effective, the bank should target younger and older clients in the future.



# EDA INSIGHTS

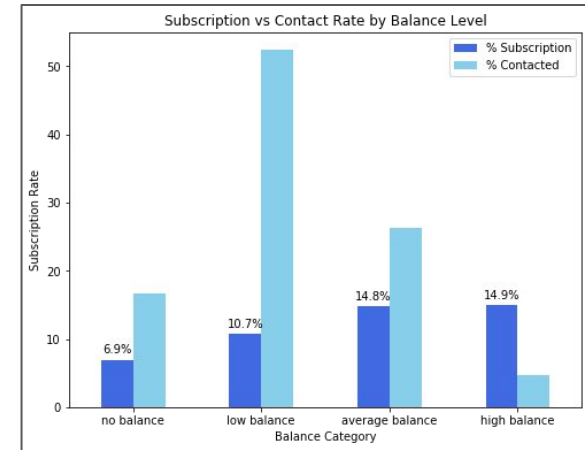
## Insights: target clients with average or high balance

To identify the trend more easily, clients are categorized into four groups based on their levels of balance:

- No Balance: clients with a negative balance.
- Low Balance: clients with a balance between 0 and 1000 euros
- Average Balance: clients with a balance between 1000 and 5000 euros.
- High Balance: clients with a balance greater than 5000 euros.

Unsurprisingly, this bar chart indicates a positive correlation between clients' balance levels and subscription rate. Clients with negative balances only returned a subscription rate of 6.9% while clients with average or high balances had significantly higher subscription rates, nearly 15%.

However, in this campaign, more than 50% of clients contacted only have a low balance level. In the future, the bank should shift its marketing focus to high-balance customers to secure more term deposits.



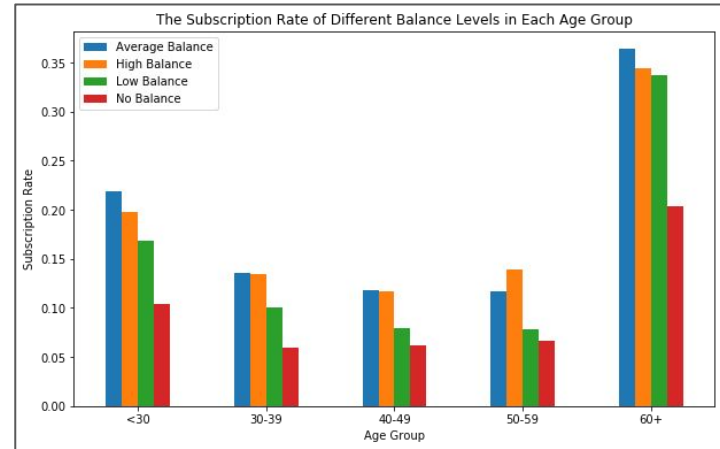
# EDA INSIGHTS

## Insights: target older clients with high balance levels

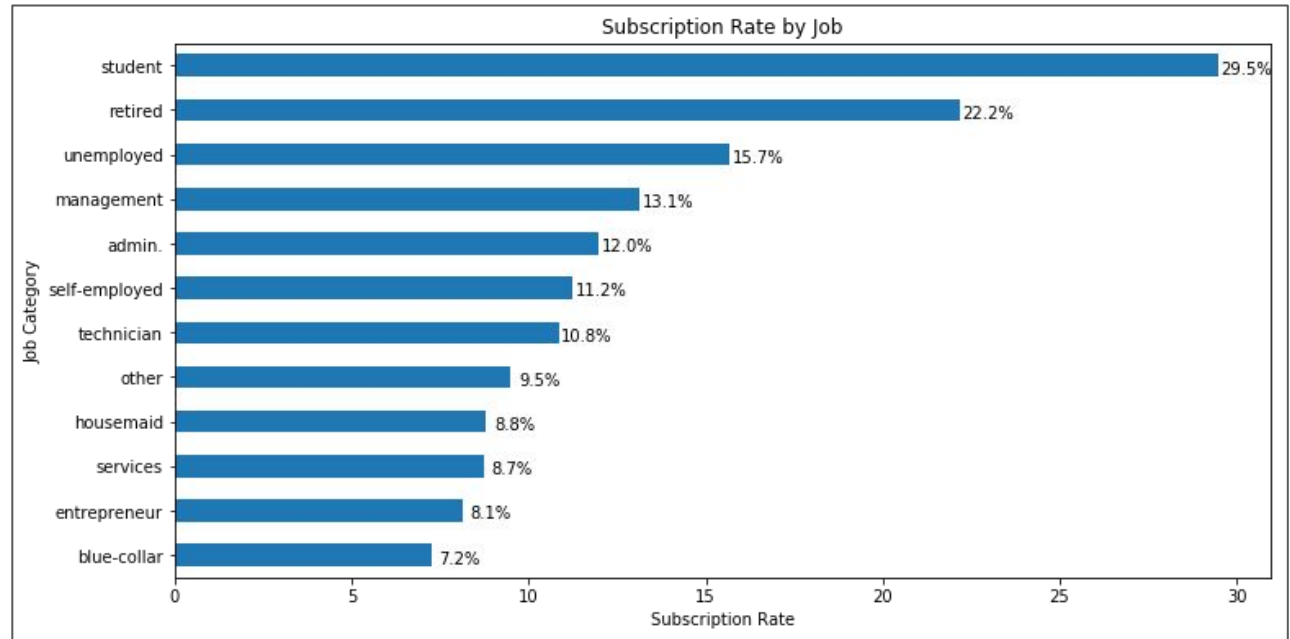
In order to investigate the combined effect of age and balance on a client's decision, we performed a two-layer grouping, segmenting customers according to their balance levels within each age group.

- **The willingness to subscribe is exceptionally high for people aged above 60 and younger people aged below 30** also have a distinguishable higher subscription rate than those of other age groups.
- **The effect of balance levels on subscription decision is applicable to each individual age group:** every age group shares a common trend that the percentage of subscription increases with balance.

In sum, the bank should **prioritize its telemarketing to clients who are above 60 years old and have positive balances**, because they have the highest acceptance rate of about 35%. The next group the bank should focus on is **young clients with positive balances**, who showed high subscription rates between 15% and 20%.



# EDA INSIGHTS



## Insights: target students and retired clients

As noted from the horizontal bar chart, students and retired clients account for more than 50% of subscription, which is consistent with the previous finding of higher subscription rates among the younger and older.

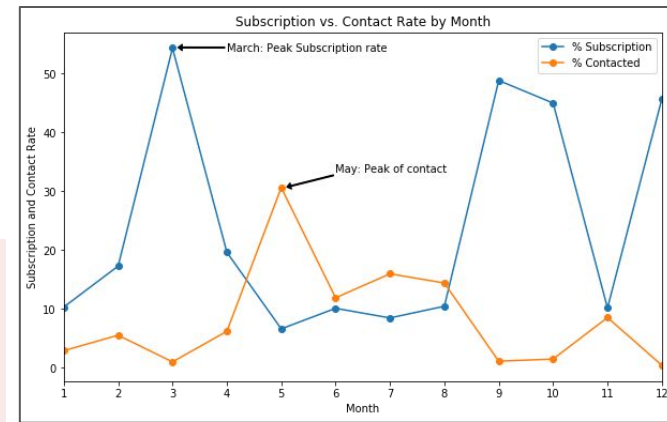
# EDA INSIGHTS

## Insights: initiate the telemarketing campaign in fall or spring

- The bank **contacted most clients between May and August**. The highest contact rate is around 30%, which happened in May, while the contact rate is closer to 0 in March, September, October, and December.
- However, the subscription rate showed a different trend. **The highest subscription rate occurred in March**, which is over 50%, and all subscription rates in **September, October, and December** are over 40%.

Clearly, **these two lines move in different directions which strongly indicates the inappropriate timing of the bank's marketing campaign**. To improve the marketing campaign, the bank should consider initiating the telemarketing campaign in fall and spring when the subscription rate tends to be higher.

Nevertheless, the bank should be cautious when analyzing external factors. More data from previous marketing campaign should be collected and analyzed to make sure that this seasonal effect is constant over time and applicable to the future.



A background image of a business meeting with a red overlay. Two people are visible, one pointing at a laptop screen. The scene is dimly lit, with a focus on the interaction. A dark blue diagonal shape is in the bottom right corner.

# CONCLUSIONS

# Conclusions

The most responsive customers possess these features:

- **Feature 1: age < 30 or age > 60**
- **Feature 2: students or retired people**
- **Feature 3: a balance of more than 5000 euros**

**With our Classification Product**, The bank will be able to **predict a customer's response** to its telemarketing campaign before calling this customer. In this way, the bank can allocate more marketing efforts to the clients who are classified **as highly likely to accept term deposits**, and call less to those who are unlikely to make term deposits.

In addition, predicting duration before calling and adjusting marketing plan benefit both the bank and its clients. On the one hand, it will increase the efficiency of the bank's telemarketing campaign, saving time and efforts. On the other hand, **it prevents some clients from receiving undesirable advertisements**, raising customer satisfaction.



# Recommendations





# Recommendations

## **1. More appropriate timing**

When implementing a marketing strategy, external factors, such as the time of calling, should also be carefully considered. The previous analysis points out that March, September, October and December had the highest success rates. Nevertheless, more data should be collected and analyzed to make sure that this seasonal effect is constant over time. If the trend has the potential to continue in the future, the bank should consider initiating its telemarketing campaign in fall and spring.



# Recommendations

## 2. Smarter marketing design

By targeting the right customers, the bank will have more and more positive responses, and the classification algorithms would ultimately eliminate the imbalance in the original dataset. Hence, more accurate information will be presented to the bank for improving the subscriptions. Meanwhile, to increase the likelihood of subscription, the bank should re-evaluate the content and design of its current campaign, making it more appealing to its target customers.



# Recommendations

## 3. Better services provision

With a more granular understanding of its customer base, the bank has the ability to provide better banking services. For example, marital status and occupation reveal a customer's life stage while loan status indicates his/her overall risk profile. With this information, the bank can estimate when a customer might need to make an investment. In this way, the bank can better satisfy its customer demand by providing banking services for the right customer at the right time.



**End of  
Presentation**