

# Project Report: Analysis of Bank Marketing Data

## Introduction

This project aims to analyse a dataset from a bank's marketing campaign. The dataset, "bank-additional-full.csv," contains information about clients, their interactions with the bank, and whether they subscribed to a term deposit or not. The primary objectives of this analysis are to understand the demographics and behaviours of attracted clients and to identify key insights for improving future marketing campaigns.

## Data Overview

The dataset consists of various features, including numerical and categorical variables. Before proceeding with the analysis, we loaded the dataset and performed some initial data exploration.

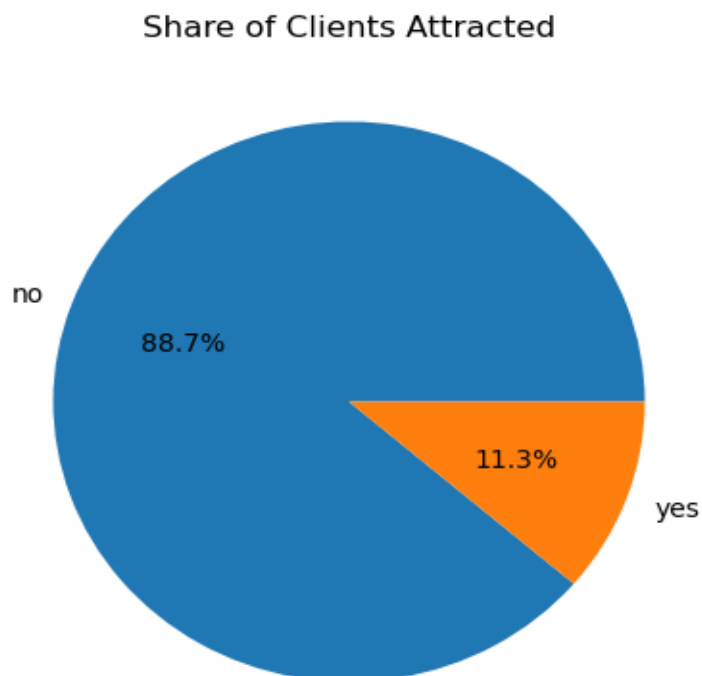
## Share of Clients Attracted

To understand the overall success of the marketing campaign, we first examined the share of clients attracted to the term deposit offer.

- **Clients Attracted (Yes): 4640**

- **Clients Not Attracted (No): 36548**

The percentage distribution of attracted and not attracted clients is visualized in the following bar chart:



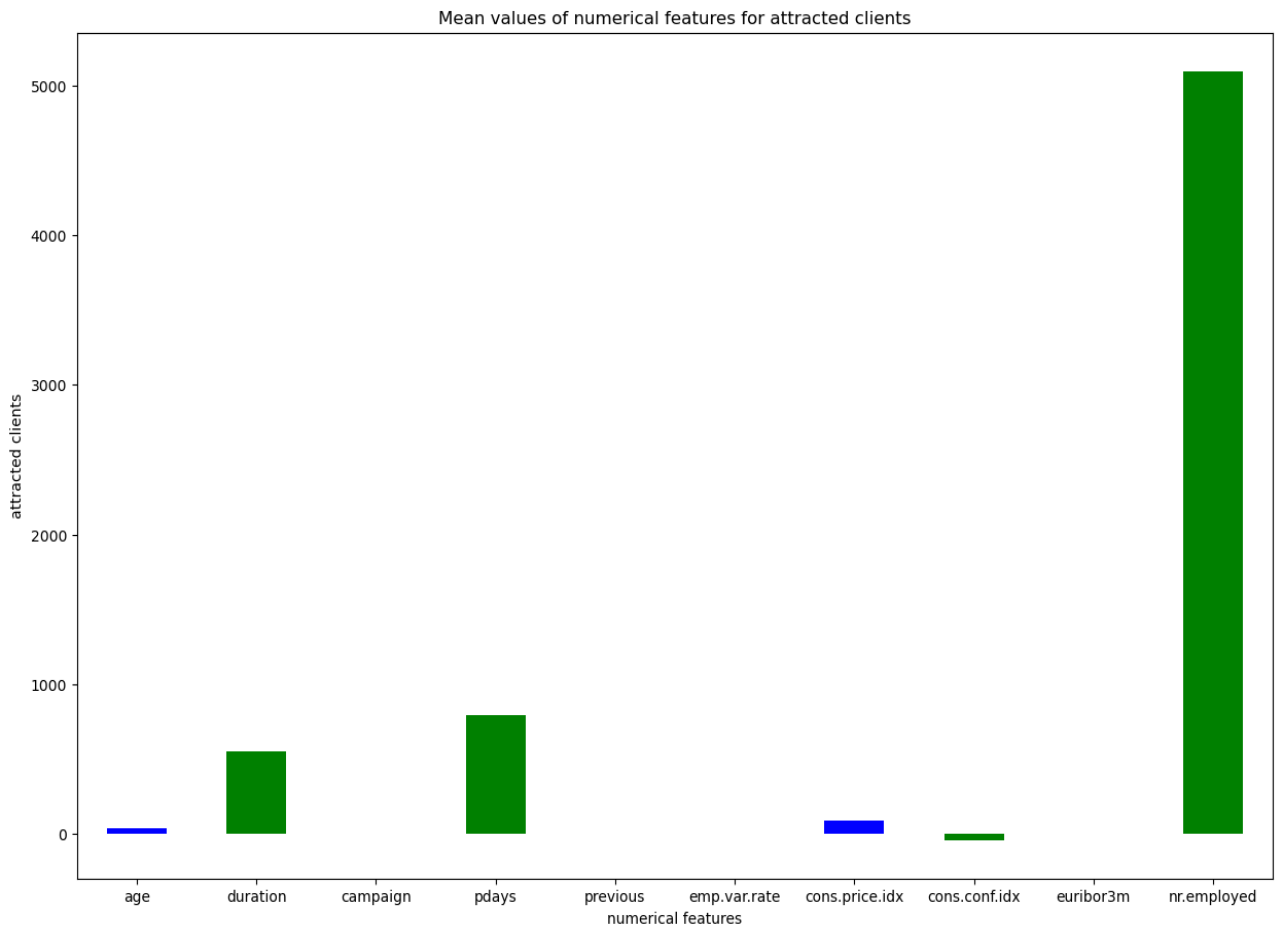
## Mean Values of Numerical Features for Attracted Clients

We calculated the mean values of numerical features for clients who were attracted to the campaign. This provides insights into the average characteristics of attracted clients.

The mean values for attracted clients are as follows:

age	40.913147
duration	553.191164
campaign	2.051724
pdays	792.035560
previous	0.492672
emp.var.rate	-1.233448
cons.price.idx	93.354386
cons.conf.idx	-39.789784
euribor3m	2.123135
nr.employed	5095.115991
dtype:	float64

These values are visually represented in the bar chart below:



## Average Call Duration for Attracted Clients

We also computed the average call duration for attracted clients. This metric helps in understanding the effectiveness of communication with clients who subscribed to the term deposit.

**-Average Call Duration for Attracted Clients: 553.19 seconds**

## Average Age Among Attracted and Unmarried Clients

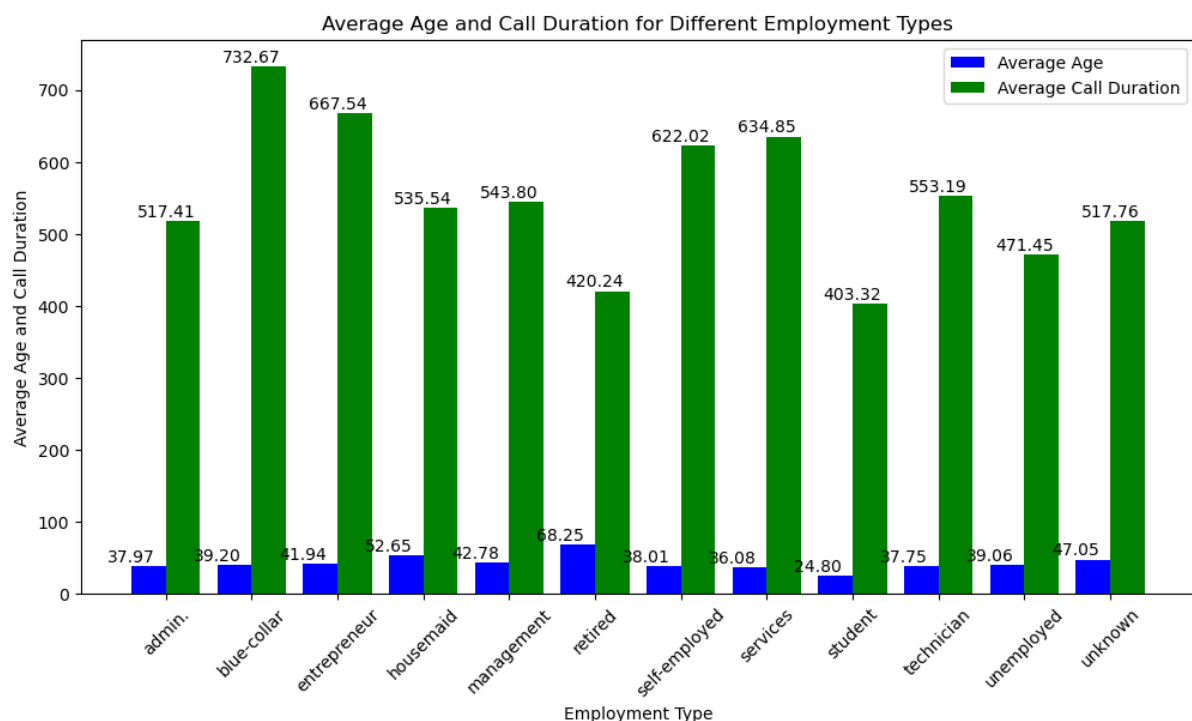
We calculated the average age specifically among attracted and unmarried clients. This can help in tailoring marketing strategies for this demographic.

**- Average Age Among Attracted and Unmarried Clients: 31.35 years**

## Analysis by Employment Type

We further analysed the data by grouping clients based on their employment types. This analysis provides insights into the average age and call duration for different employment categories among attracted clients.

The grouped bar chart below illustrates the average age and call duration for different employment types:



## Conclusion

In conclusion, this analysis of the bank marketing dataset provides valuable insights into the success of the marketing campaign. Key findings include:

- The percentage of attracted clients is **11.3%**, indicating the campaign's effectiveness.
- Attracted clients have an average age of **40.913147** years and an average call duration of **553.191164** seconds.
- Unmarried clients among attracted individuals have an average age of **31.35** years.
- The analysis of different employment types reveals variations in average age and call duration, which can be useful for targeted marketing.

These insights can inform future marketing strategies to improve the bank's campaign effectiveness. Further analysis and segmentation can lead to more refined strategies and better client targeting.

## Recommendations

Based on the analysis, we recommend the following:

- 1. Target Unmarried Clients:** Given that unmarried clients have a relatively lower average age and may have different financial needs, consider tailoring marketing messages to this demographic.
- 2. Segmented Marketing:** Use the insights from the analysis of different employment types to create segmented marketing campaigns. Customize communication and offers based on the characteristics of each employment group.
- 3. Optimize Call Duration:** Since call duration is an important factor in attracting clients, focus on training marketing agents to effectively engage clients during calls without making them excessively long.
- 4. Continuous Monitoring:** Continuously collect and analyse data from marketing campaigns to adapt strategies in real-time based on performance metrics.
- 5. Feedback Loop:** Establish a feedback loop with clients to understand their needs and preferences better, which can inform future marketing efforts.

By implementing these recommendations and leveraging the insights gained from this analysis, the bank can enhance its marketing campaigns and improve its overall success rate in attracting clients.