



Term Deposit Subscription

Hellen Mkumbo, 301130690

16th August, 2022




Executive Summary

- The goal of this project is to assist the bank of Portuguese to increase the success of the telemarketing campaign to sell the long term deposit.
- The dataset used is related to telephone direct marketing campaigns conducted by a Portuguese banking institution as a tool.
- The information will be used in an analysis of the potential effects of a marketing campaign performed to encourage clients to open term deposits with the bank.



Introduction

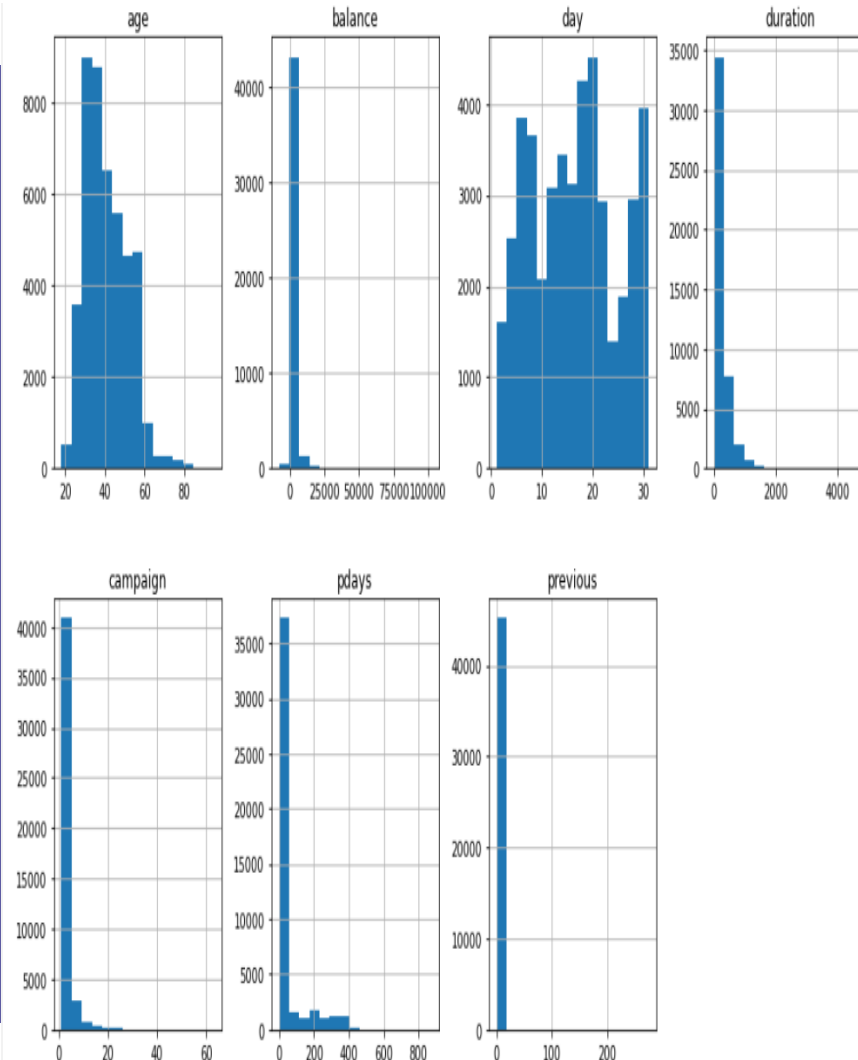
- 
- Portuguese Bank is a banking institution that aims to gain business by offering long-term deposits to potential customers as marketable products.
 - The obtained deposits may be used to make additional investments at higher rates or may be offer loans to clients at higher interest rates.
 - In hopes of predicting these successes, the Portuguese bank collected historical data from 2008 to 2013.

Problem Statement

- The purpose of the project was to identify the target market's most likely clients to subscribe for term deposits
- To find the profile of the customers whom Portuguese Bank will target to open a long term deposits account in their bank through telemarketing phone calls.

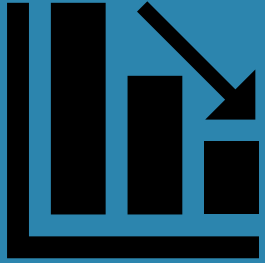
Data Variables

- Age: The most of customers are in the 20 to 40 age range.
- Balance: Customers' yearly balances range from 0 to 10,000 on average.
- Campaign: Between 1 and 20 customer contacts were made on average throughout the campaign.
- Day: Customers often made contact on the last day of the month between the hours of 10 and 20.



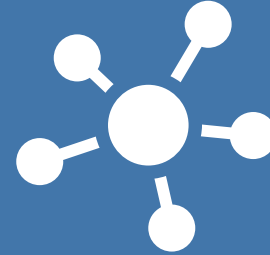
- Duration: Customers' latest contacts lasted, on average, between 0 and 2000 seconds.
- Pday: The majority of the time, 0 to 100 days have passed since the customers from the last campaign were last contacted.
- Previous: Before the campaign, each client made an average of between 0 and 10 contacts.

Modeling Recommendation



Logistic Regression

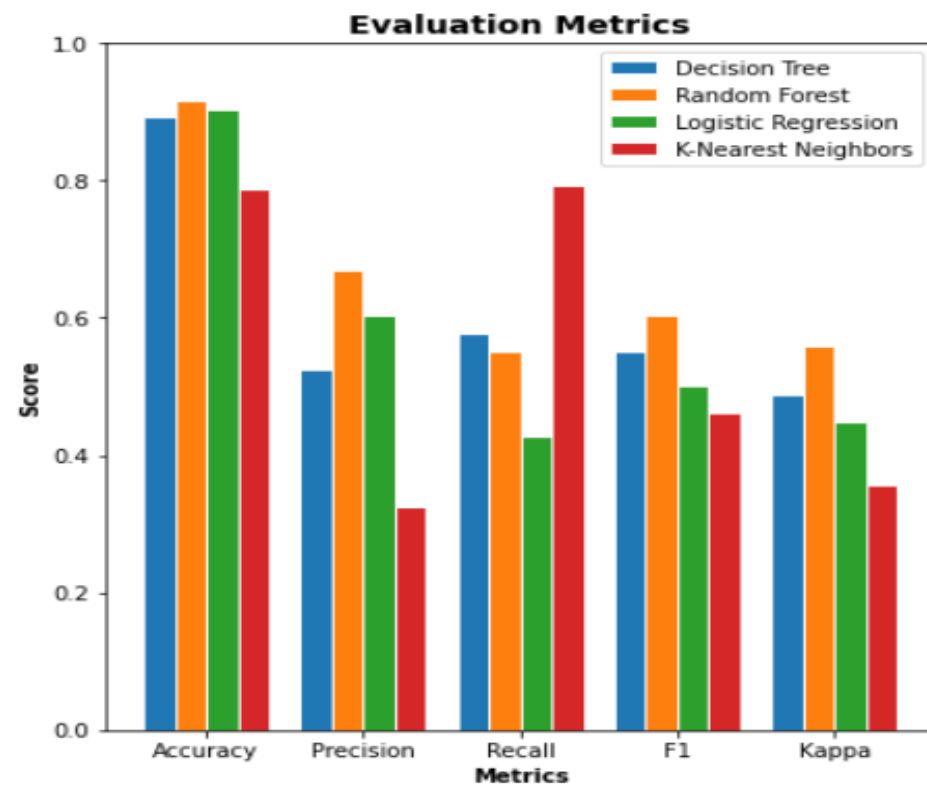
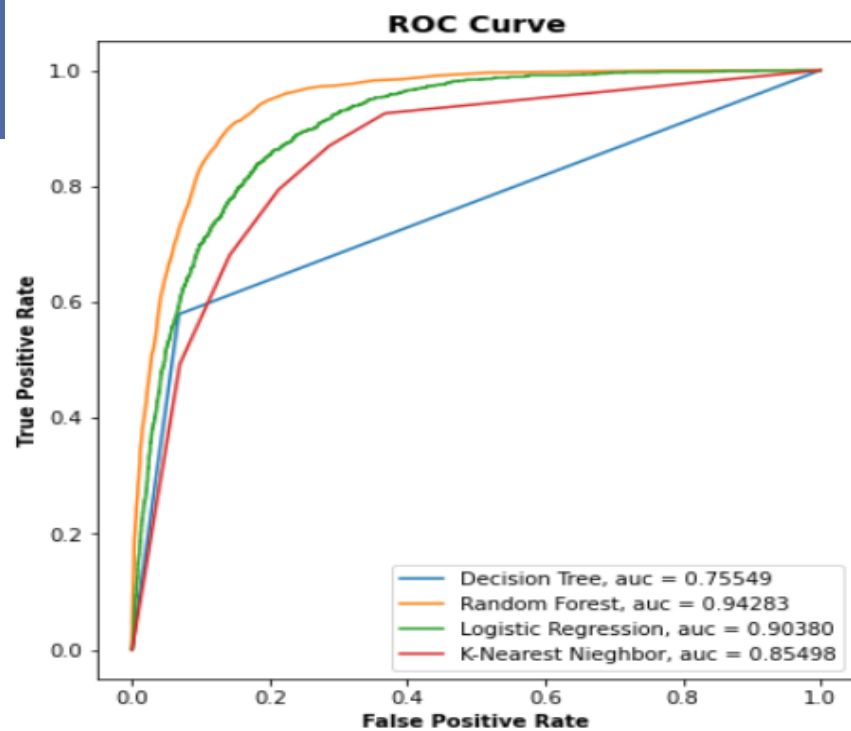
K-Nearest Neighbors



Decision Tree

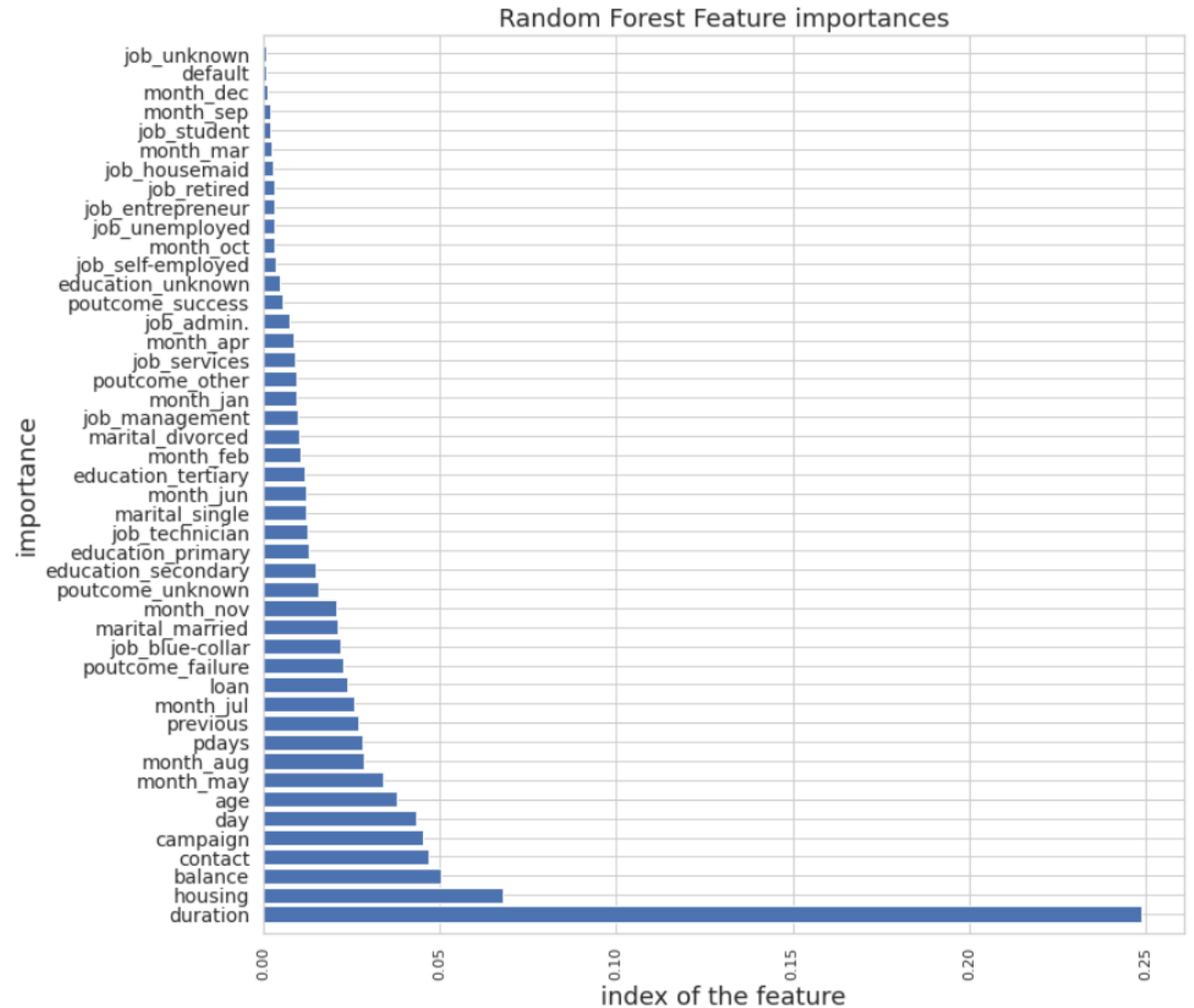
Random Forest





Random Forest Model

- The graphic shows the importance of each attribute in defining the model.
- The most important attributes are related:-
 - Customer's account balance,
 - Number of contacts performed during this campaign and contact duration,
 - If a customer has housing loan
 - Customer's contacts communication type.



Recommendations



1. More suitable timing: According to the prior analysis, the months with the highest success rates were May, August and July.

2. Customers with account balance above 1500\$ are more likely to subscribe for term deposit.
3. Contact type should be cellular

Conclusion

- Using the random forest technique, The bank will be able to forecast a customer's reaction to its telemarketing campaign before calling that client.
- By doing this, the bank may focus more of its marketing efforts on customers who are believed to be very likely to deposit term deposits and less on customers who are believed to be unlikely to make term deposits.



THANK YOU!