



Data Glacier

Your Deep Learning Partner

Exploratory Data Analysis

Bank Marketing Campaign

8-October-2021

Agenda

Executive Summary

Problem Statement

Approach

EDA

EDA Summary

Recommendations

Executive Summary

- *ABC Bank wants to sell its term deposit product to customers.
- *By analyzing the clients data we try to understand what are the patterns on opting for the policy.
- *17 different attributes were considered to perform the analysis.
- *The data had information of 45211 customers who purchased and who did not purchase for the policy.
- *Analysis was primarily focused on the customers who purchased the policy.

Problem :

- *Identify the age group, marital status, education level, job description of customers who purchase the policy.
- *What is the purchase pattern for the policy throughout the year.?
- *Does contacting the customer before or after the campaign beneficial for the company?
- *What is average time taken for communication by a client who purchases the policy?

Approach

1. Understanding the Data.
2. Purchase of policy over time.

Duration Analysis

2. Recommendation

Assumption:

The data sample that which is given is independently and randomly sampled and it's a true representation on population.

Exploratory Data Analysis (EDA)

Summary

	Age	Duration
mean	40.93	258.16
std	10.61	257.52
min	18	0
50%	39	180
max	95	4918

1. On average the age of the clients is 40.
2. The age group selected for this campaign is from 18-95.
3. The maximum communication time spent with a customer is 4918 seconds.

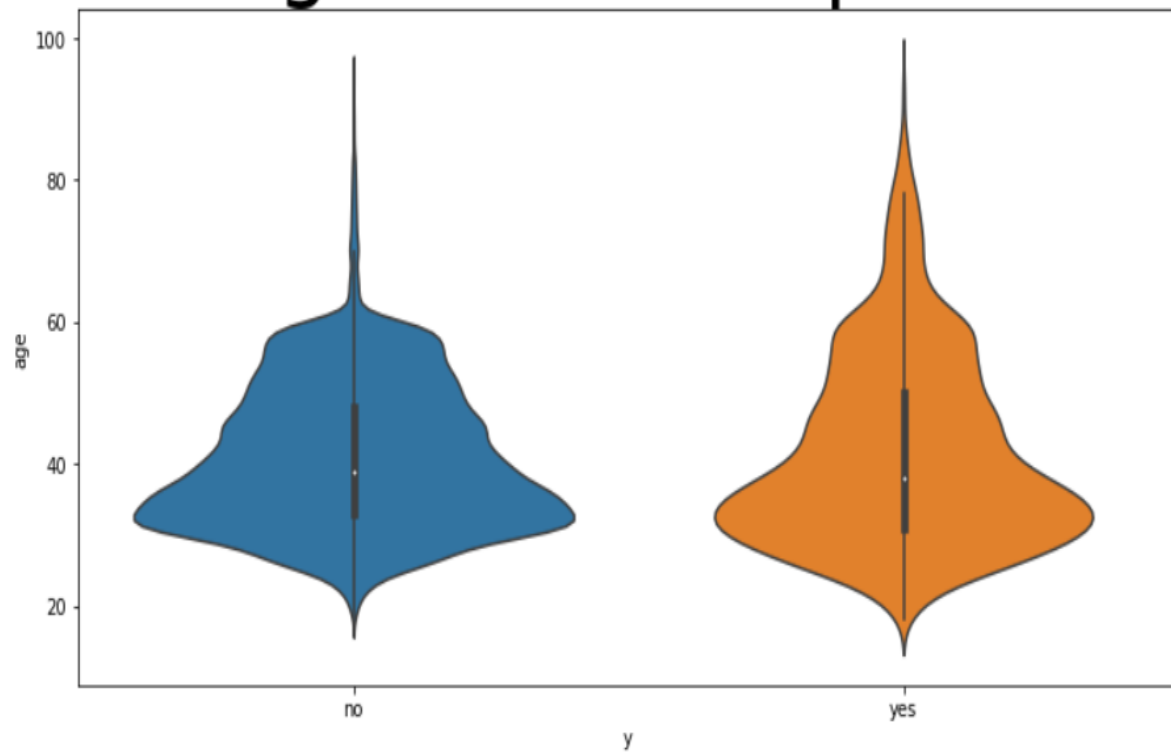
Customer Analysis



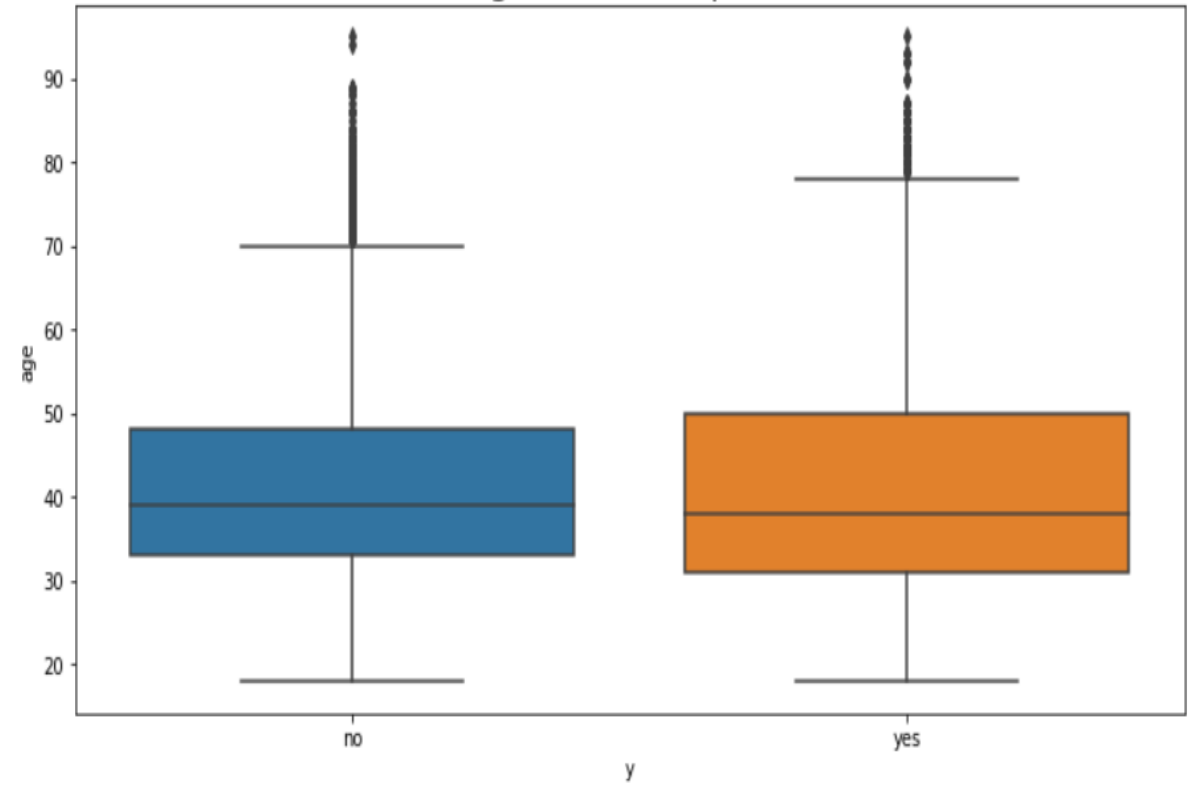
There are total 5289 customers purchased the policy and 39922 customers who didn't take the policy.

Customer's Age Analysis

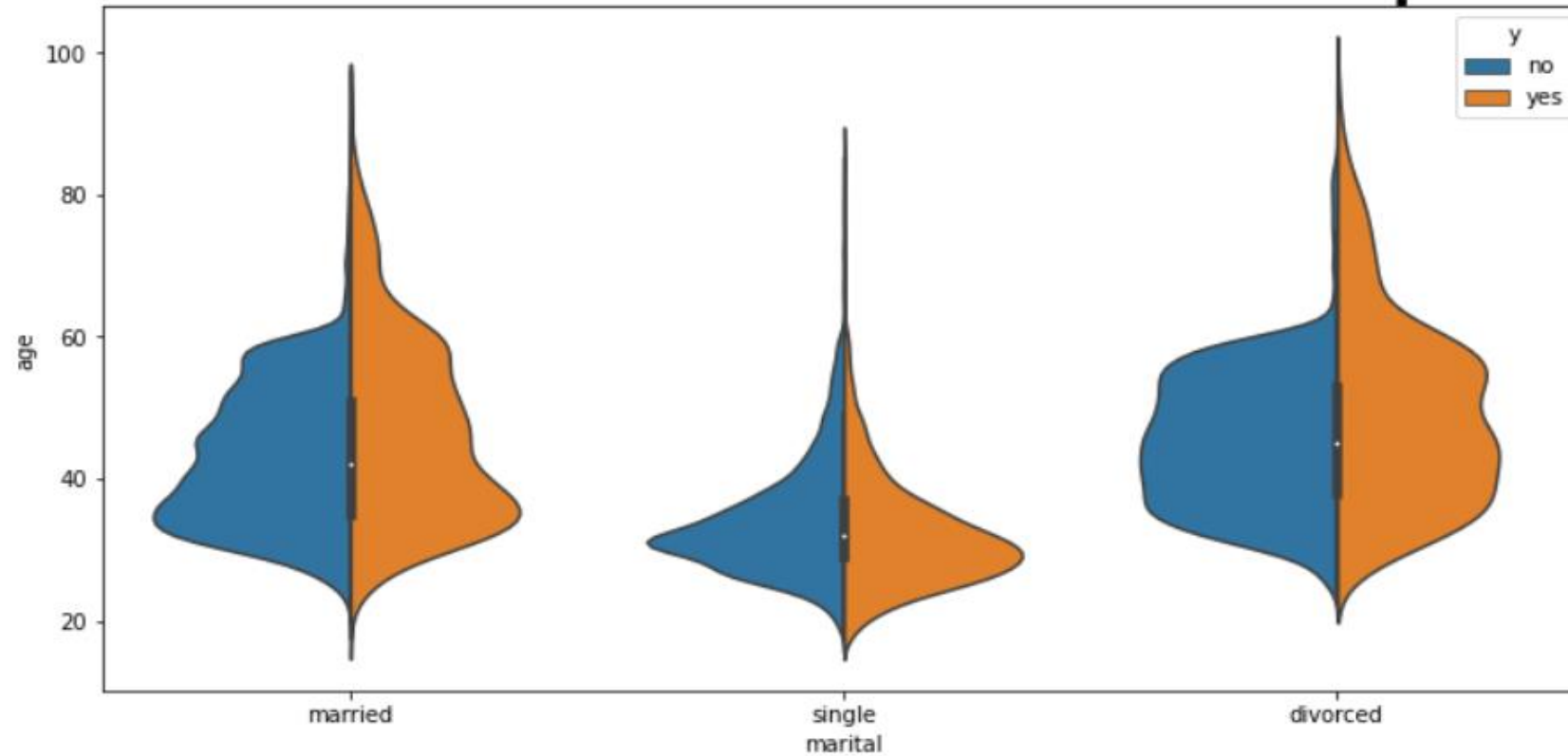
Age vs Subscription



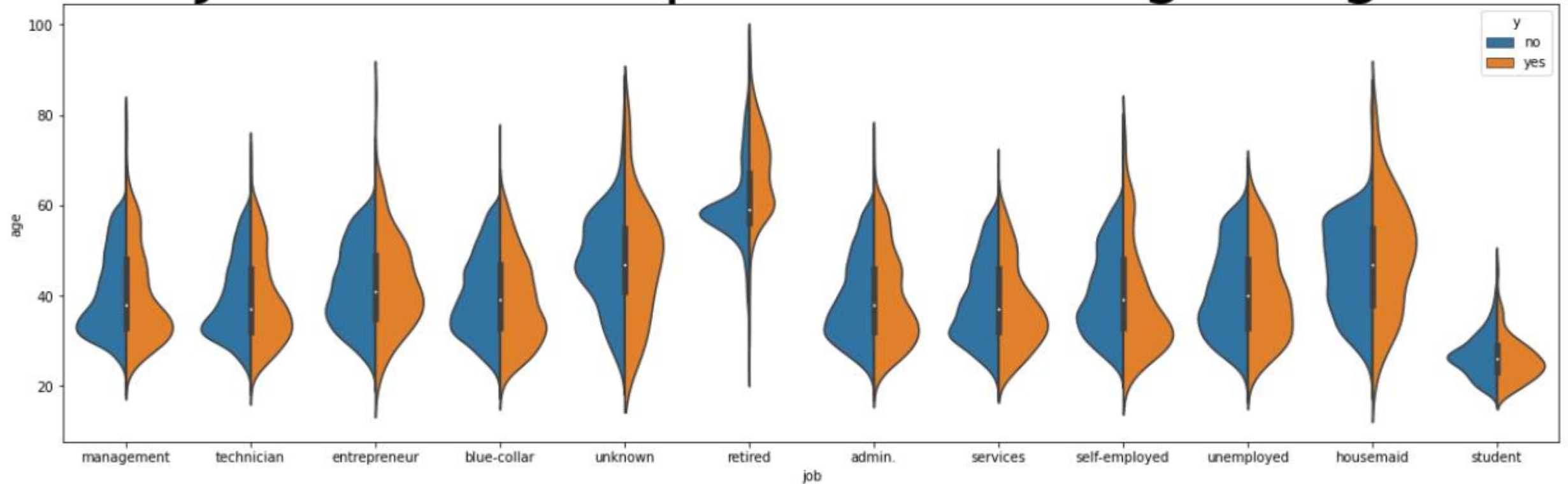
Age vs Subscription



Marital Status vs Subscription



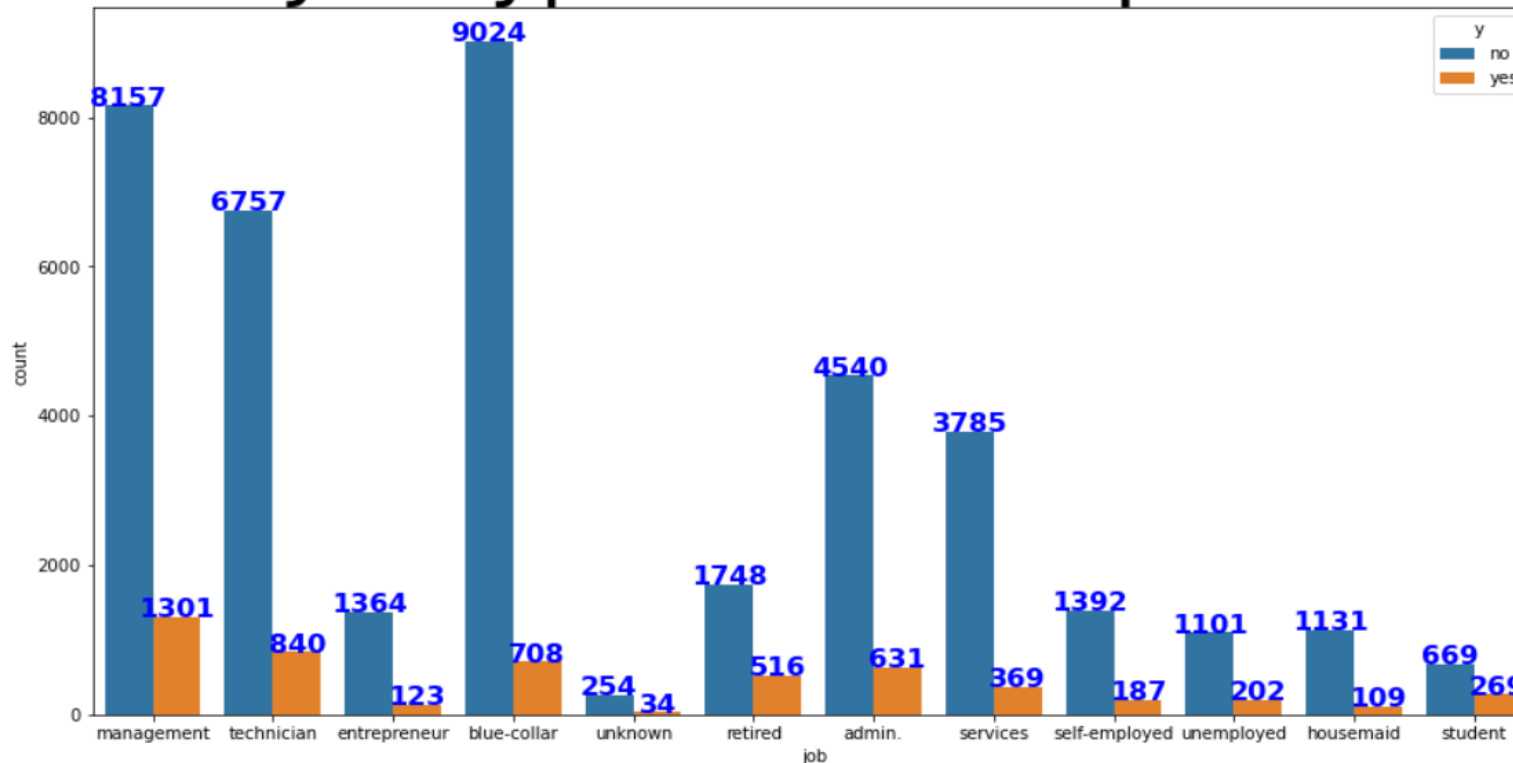
Job vs Subscription according to Age



Clients who buy the policy are more likely to fall between the age of 20-40 there are more number of clients beyond age of 60 who have bought the policy and median for no policy is higher. Retired clients are more likely to buy the policy.

Policy Purchase according to Job Type

Job Type vs Subscription



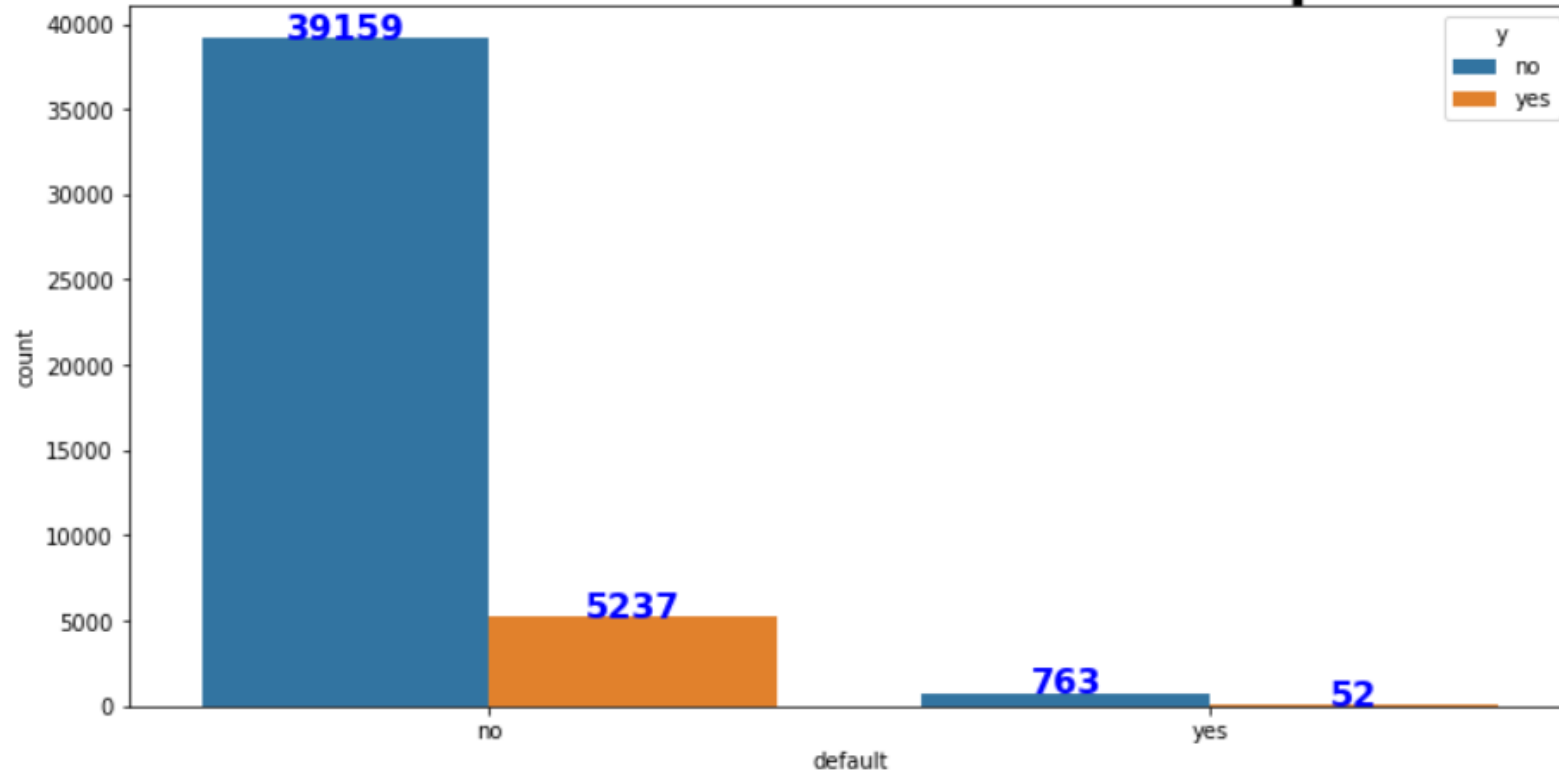
Purchase percentage:

1. Management = 13%
2. Technician = 11%
3. Entrepreneur = 8%
4. Blue Collar = 7%
5. Unknown = 11%
6. Retired = 23%
7. Admin = 12%
8. Services = 9%
9. Self Employed = 12%
10. Unemployed = 15%
11. Housemaid = 9%
12. Student = 29%

Clients who have their job description as management are more likely to opt for the policy and with unknown least.

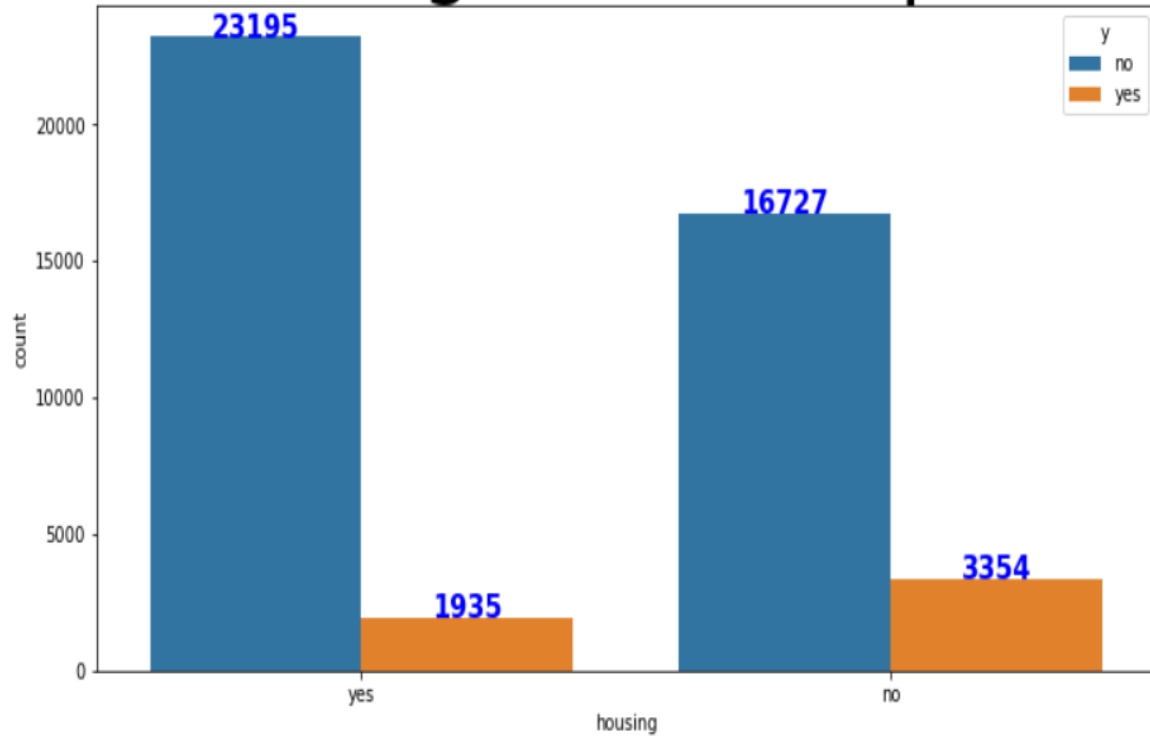
Financial Status of Clients

Defaulters vs Subscription

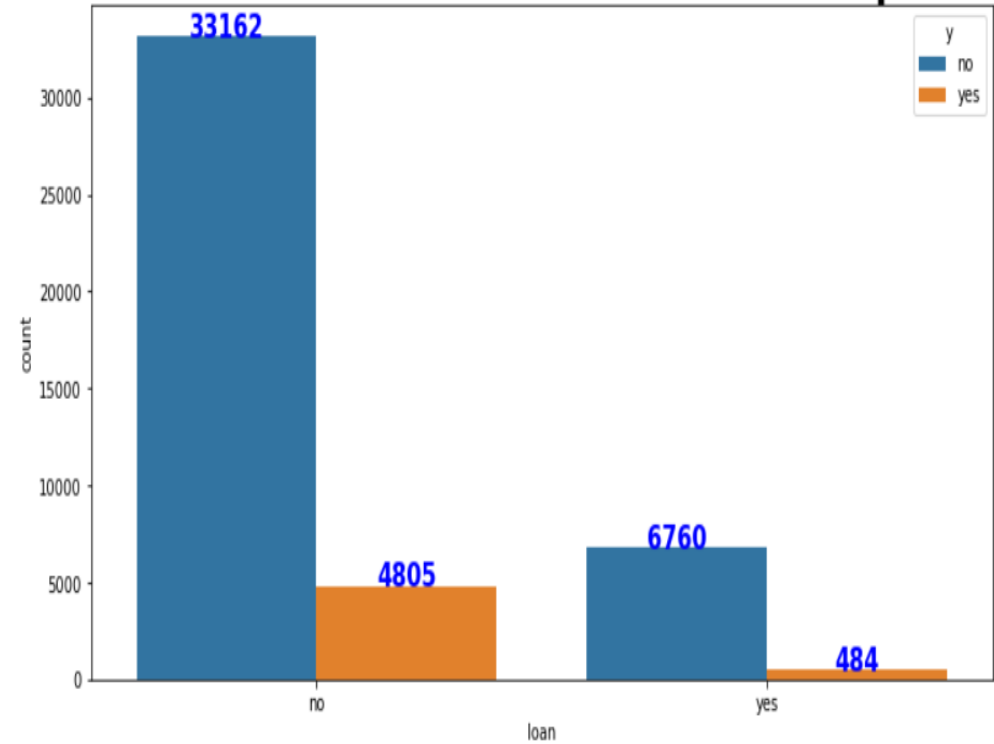


Clients who do have default as their status are less likely to buy the policy

Housing vs Subscription



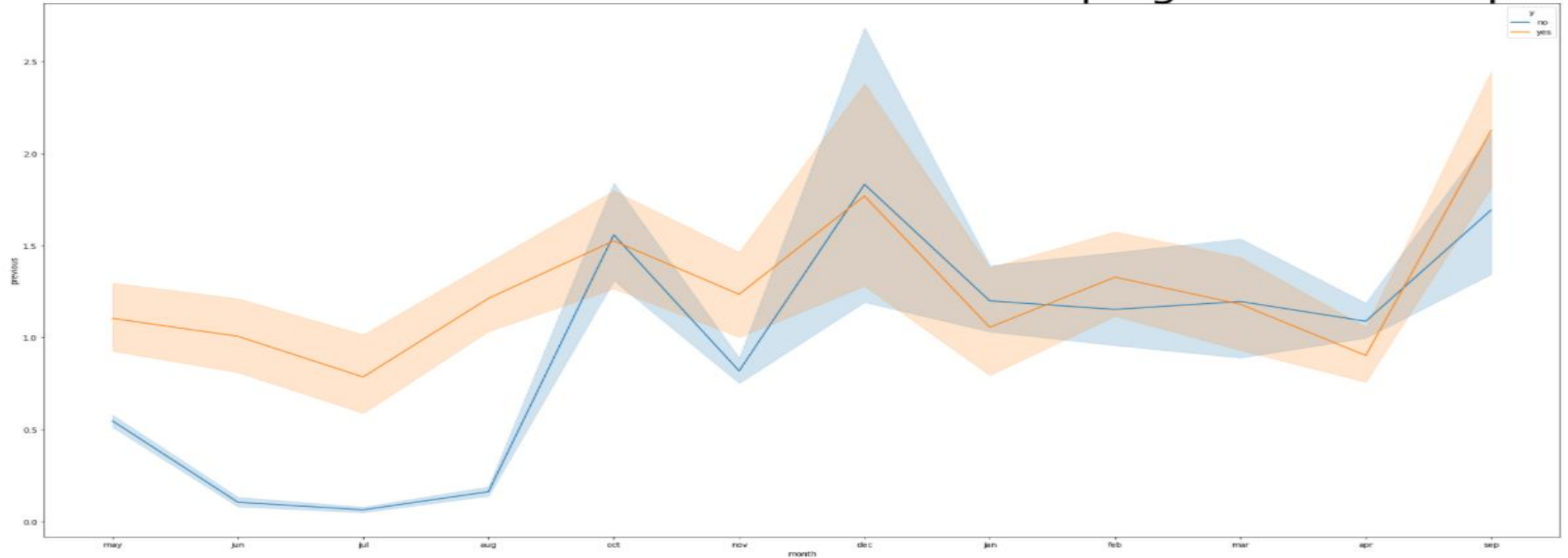
Personal Loan vs Subscription



Irrespective of their housing loan status there is a small difference(26%) between clients who have and not have housing loan and yet apply for the policy.

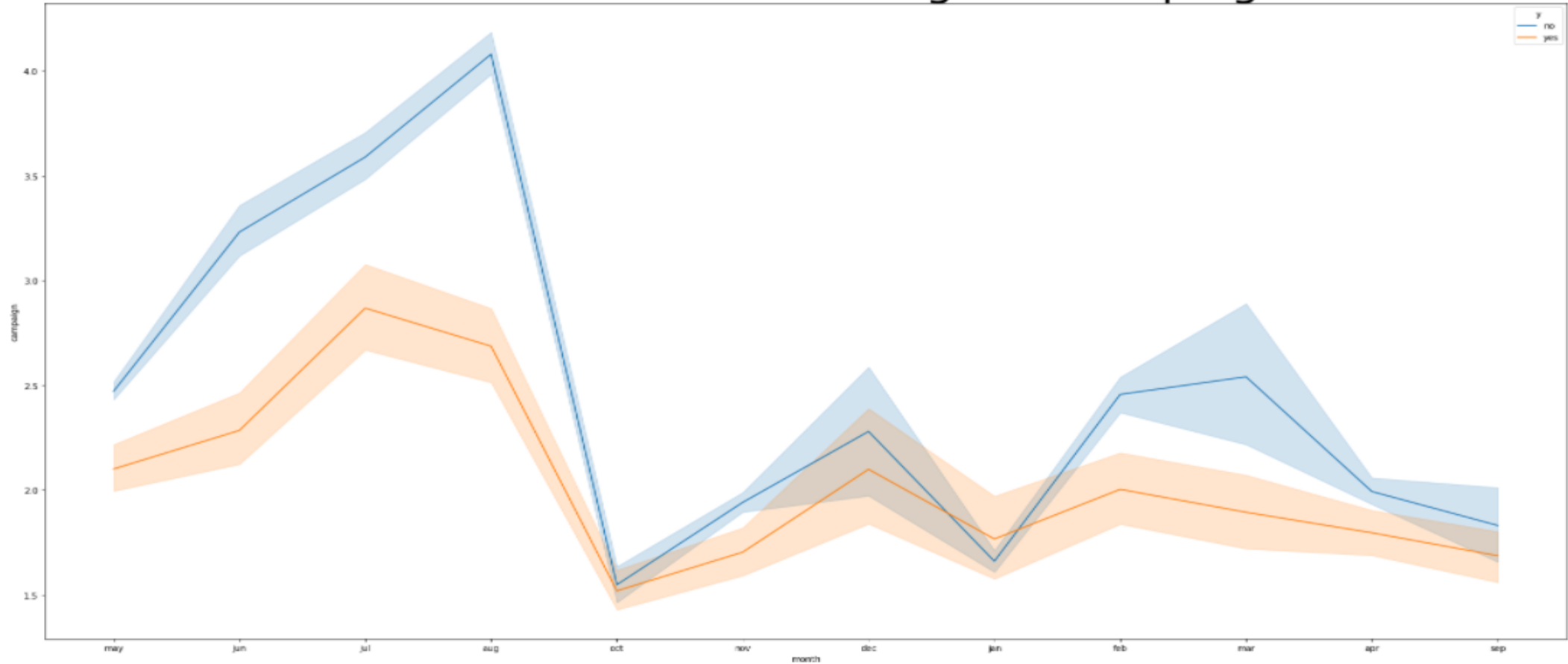
Contact with Customer Analysis

Number of Contacts Performed before this Campaign and Subscription



Customers are more likely to go for policy from May to October. Thus contact before the campaign brings more customers

Number of Contacts Performed before during the Campaign and Subscription



Positive subscription to the policy during the campaign does not outnumber the failure to subscription. However December month is favorable to out variable of interest.

Recommendations

- 1. Clients who buy the policy are more likely to fall between the age of 20-40 there are more number of clients beyond age of 60 who have bought the policy and median for no policy is higher. Retired clients are more likely to buy the policy.**
- 2. Clients who do have default as their status are less likely to buy the policy.**
- 3. Irrespective of the housing loan status there is a small difference(26%) between clients who have and not have housing loan and yet apply for the policy.**
- 4 Clients with secondary and tertiary education are more likely to opt for the policy.**
- 5. On average the call lasts for 426 seconds for the clients who opted for the policy and for clients who did not opt for policy the call lasted for 164 seconds which is lesser than clients who opt for policy. Thus clients spend more time on communication when they opt for the policy.**
- 6. Clients are more likely to opt for policy from the month of May to October also in the month of September. Thus contact before the campaign brings more clients to opt for the policy.**

Recommended Models

The output variable / target is wheatear the client has subscribed to the term deposit or not(Yes/No).
The classification goal is to predict if the client will subscribe (yes/no) a term deposit (variable y). Thus models which can be applied tothe data are as follows:

1. Logistic Regression
2. For boosting the **LightGBM** classifier (evaluation metric as AUC) along with Kfold cross validation.
3. Bagging - Random Forest
4. Ensemble models
5. Decision tree

Presented by:
Jagriti Bablani

Thank You