



ANALytica

BANK TERM PROJECT

WHO SUSCRIBES TO A BANK TERM DEPOSIT?



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BUSINESS PROBLEM

"How can a bank effectively predict which customers are likely to subscribe to a term deposit, thereby optimizing their marketing strategies and improving the success rates of their direct marketing campaigns?"



GOALS AND OBJECTIVES

Objective

This project aims to predict whether a client will subscribe to a bank term deposit using machine learning

Business Value

1. Avoid wasted marketing efforts and costs.
 2. Target the right Audience
 3. High Returns
-





DATASET UNDERSTANDING



Source

[UCI Machine Learning Repository](#) 

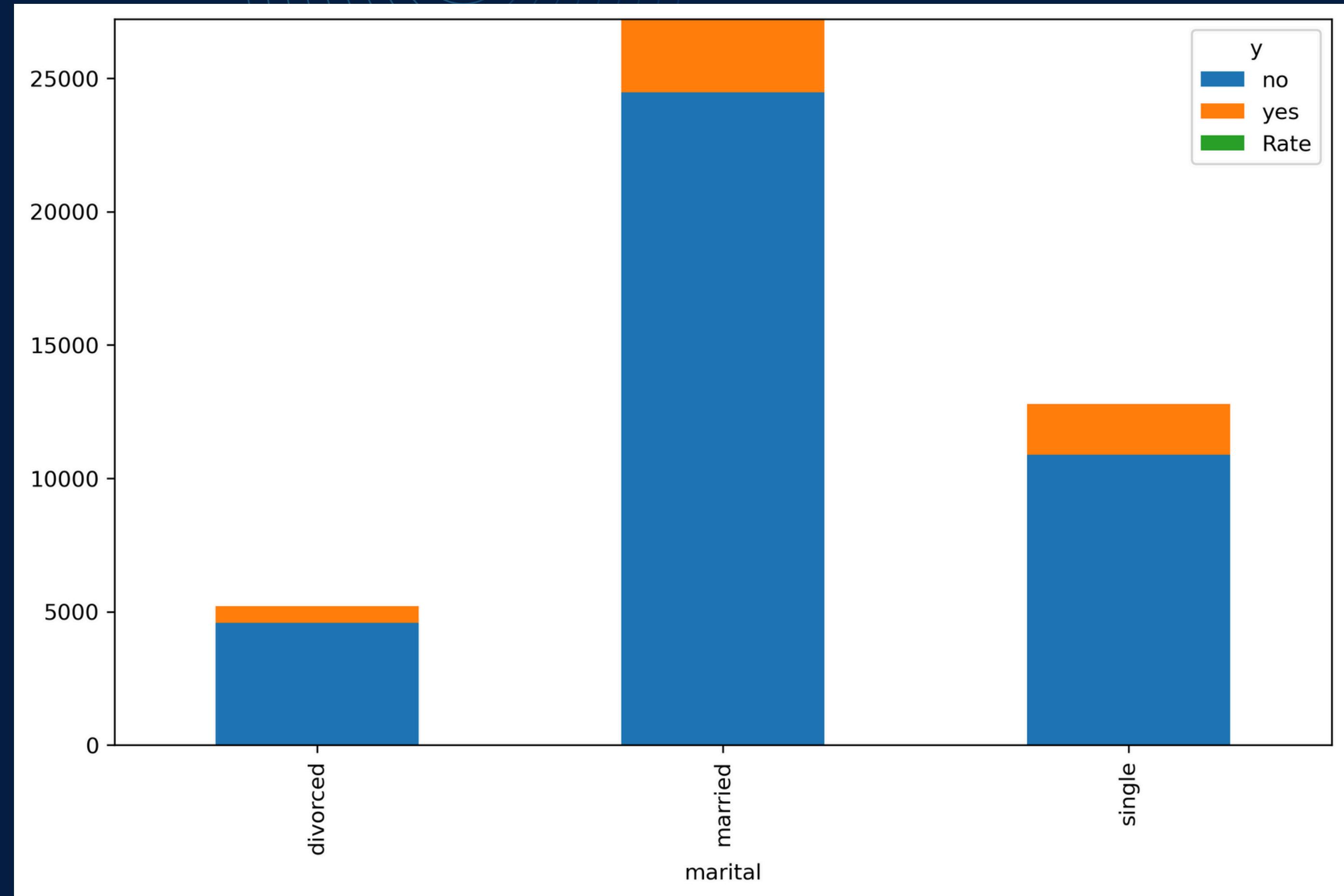


Key Features

- 
- 45211 records
 - 9 input Features
 - 1 target variable

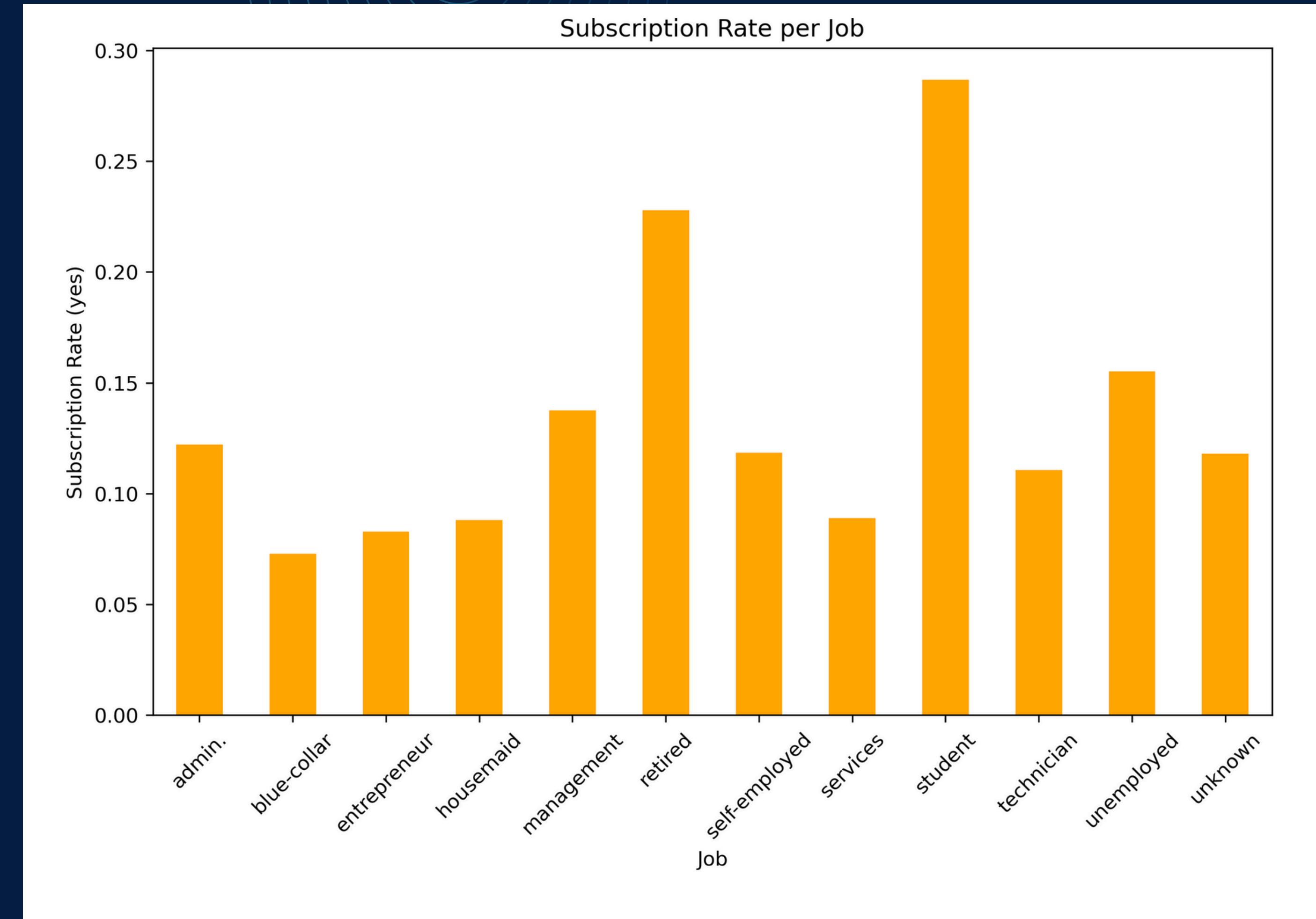
Marital Status Analysis

- Married people were the majority in the dataset
- Single and divorced have higher rate of subscription



Job Category Analysis

- Students and Retired individuals have a higher rate of subscription
- Could be due to reduced financial responsibilities



Loans Analysis

- Individuals without loans have a higher probability of accepting compared with ones with loans

- Individuals with defaulted loans have a lower probability of accepting

y	no	yes	acceptance_rate
loan			
no	33162	4805	0.126557
yes	6760	484	0.066814

y	no	yes	acceptance_rate
default			
no	39159	5237	0.117961
yes	763	52	0.063804

MODELLING

80% TRAINING SET



20% TESTING SET



LOGISTIC REGRESSION

Confusion matrix

Baseline Model

Simple and flexible model

Precision:

- No: 0.91
- Yes: 0.27

Recall

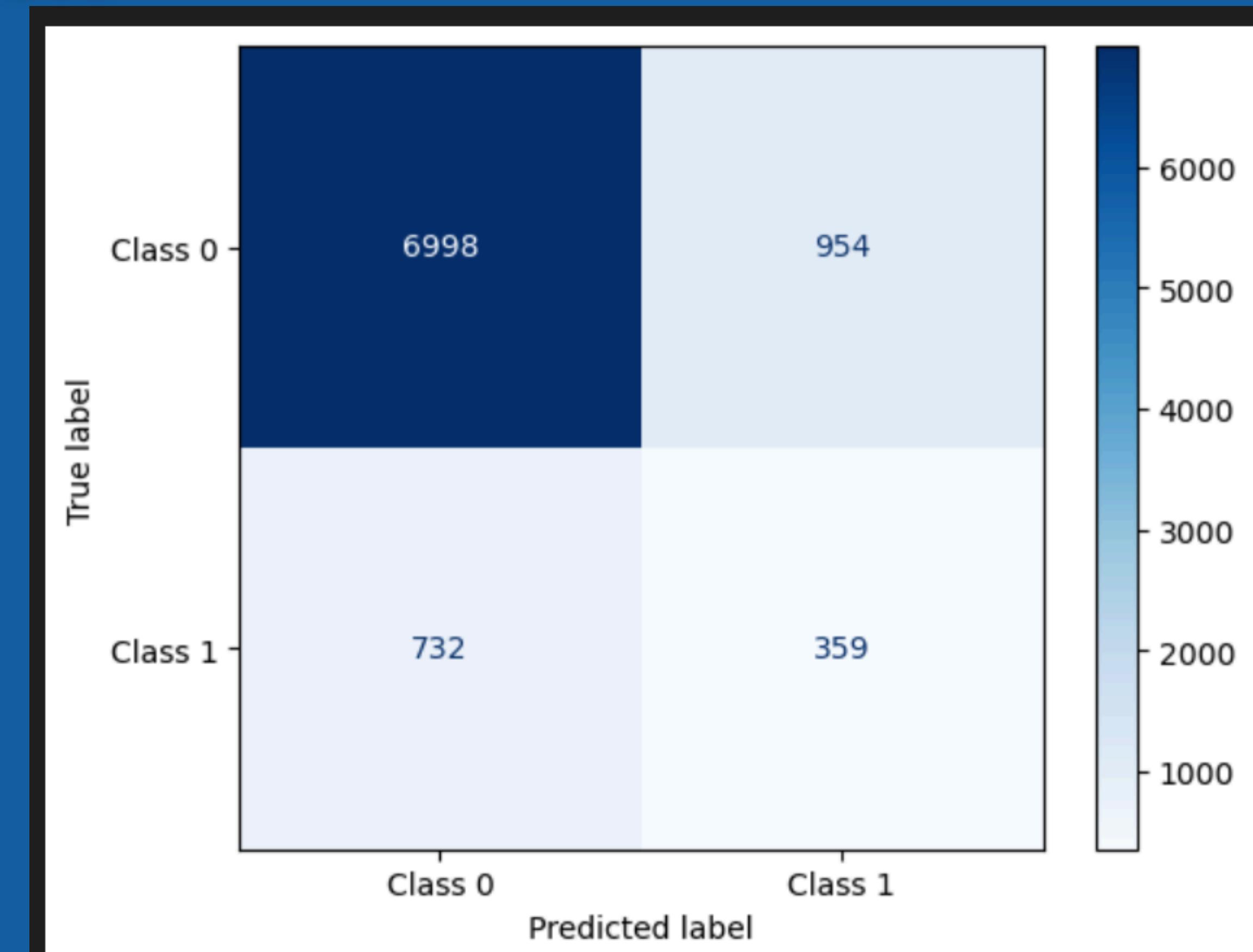
- No: 0.88
- Yes: 0.33

ROC AUC Score

- A score of 0.68



Models performs fairly,
poorly for `yes` and
very well for `yes` class



DECISION TREE MODEL

Confusion matrix

Advanced Model

Good for Non-Linear Data

Precision:

- No: 0.91
- Yes: 0.20

Recall

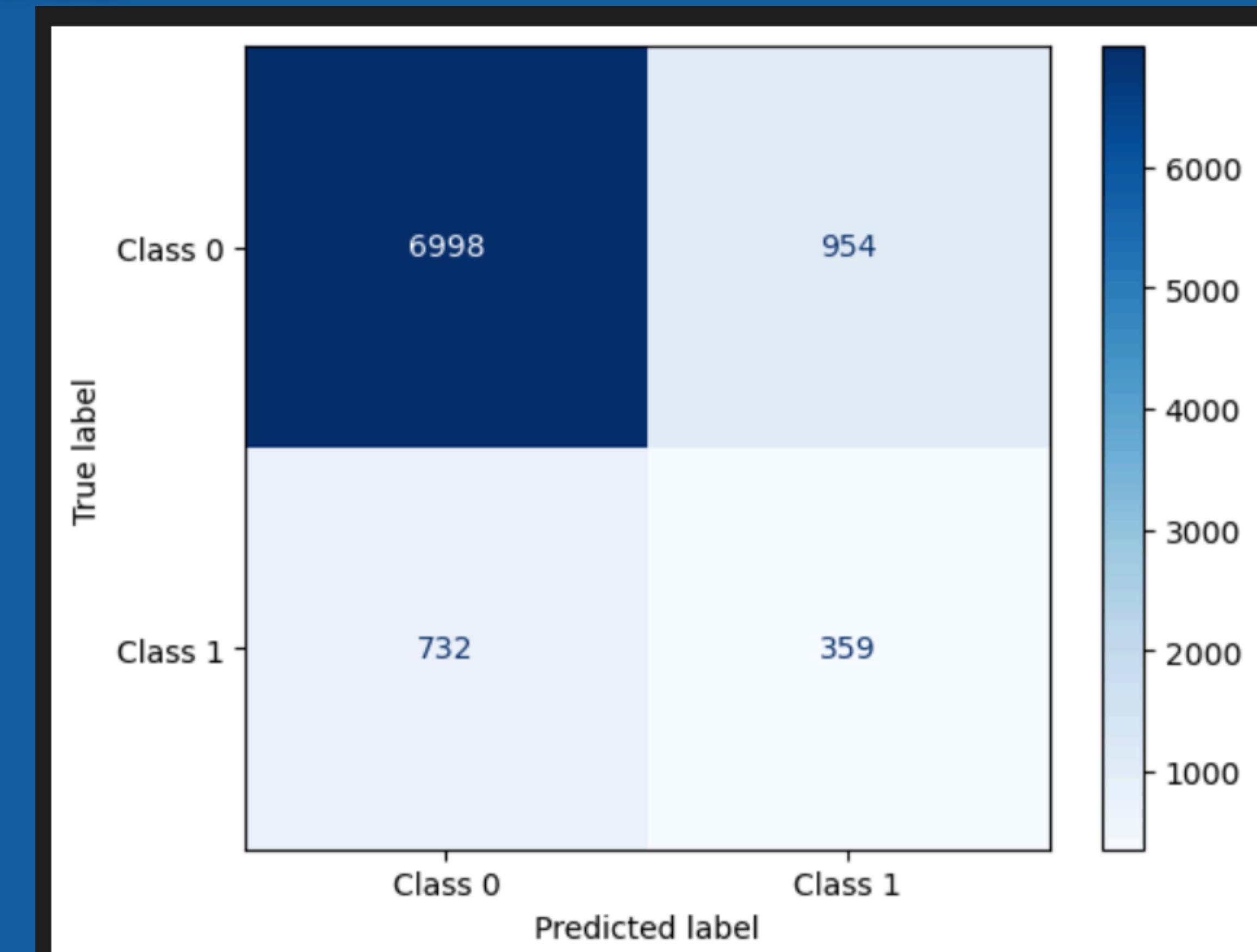
- No: 0.73
- Yes: 0.32

ROC AUC Score

- A score of 0.66



Models performs fairly,
poorly for `yes` and
very well for `yes` class



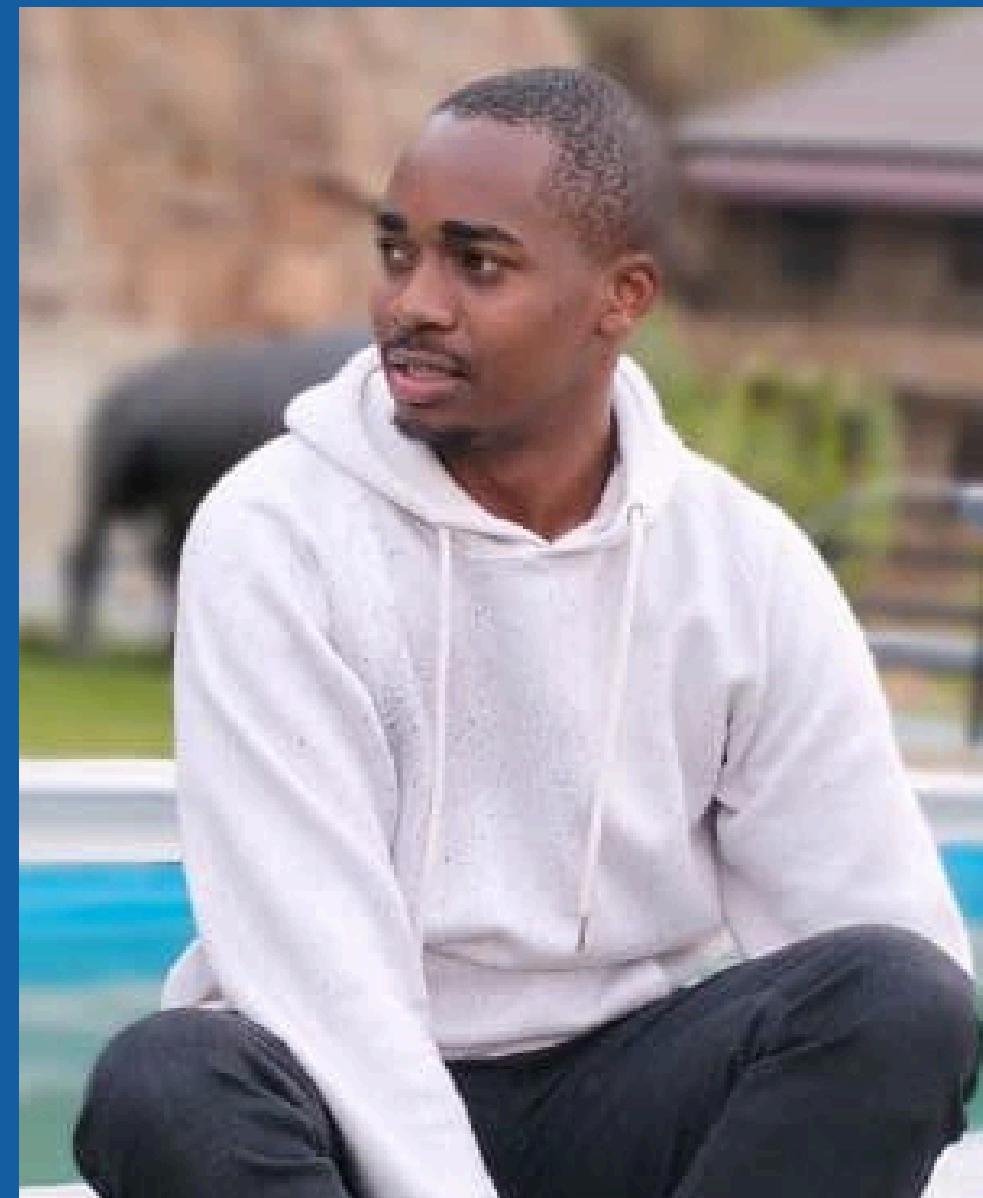
Findings

RECOMMENDATIONS

1. Individuals who have lower financial responsibilities such as students, retired or divorced not neglecting the others such as admin and management job categories
2. Individuals who have a yearly bank balance of \$80,000 - \$90,000 and more campaigns on \$10,000 - \$60,000
3. Those Who do not have an existing bank loan or have not defaulted on the loan not neglecting others as there can be success still
4. Only doing 1-5 campaigns per customer
5. Those who have an existing or previously subscribed to deposit terms
6. A logistic model and Decision tree can be used to model so as to predict the rate of acceptance, Though a more balanced dataset should be used for training the models

NEXT PROJECT





PREPARED BY

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DATA SCIENCE

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INSTRUCTORS:

1. FAITH
2. MILDRED



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Thank's For Watching

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