



# Bank Marketing Targets

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# Business Problem

## Deposit as a Major Income

Term deposits are a major source of income for a bank.

## Offering Deposit

The bank has various outreach plans to sell term deposits to their customers

## Outreach Techniques

- Email Marketing
- Advertisements
- Telephonic Marketing
- Digital Marketing

## Best Offering Techniques

Telephonic one of the most effective way, but require huge investment.

## Identify Customers

Types customers who most likely to convert deposit

## Reduce Money Spent on Calls

Predict customers who most likely to convert can reduce money spent on telephonic marketing.

# Objectives

Predict customers who likely to take deposit using machine learning.

Recommend types of customer who likely to take deposit based on exploratory data analysis.

# 01 EXPLORATORY DATA ANALYSIS

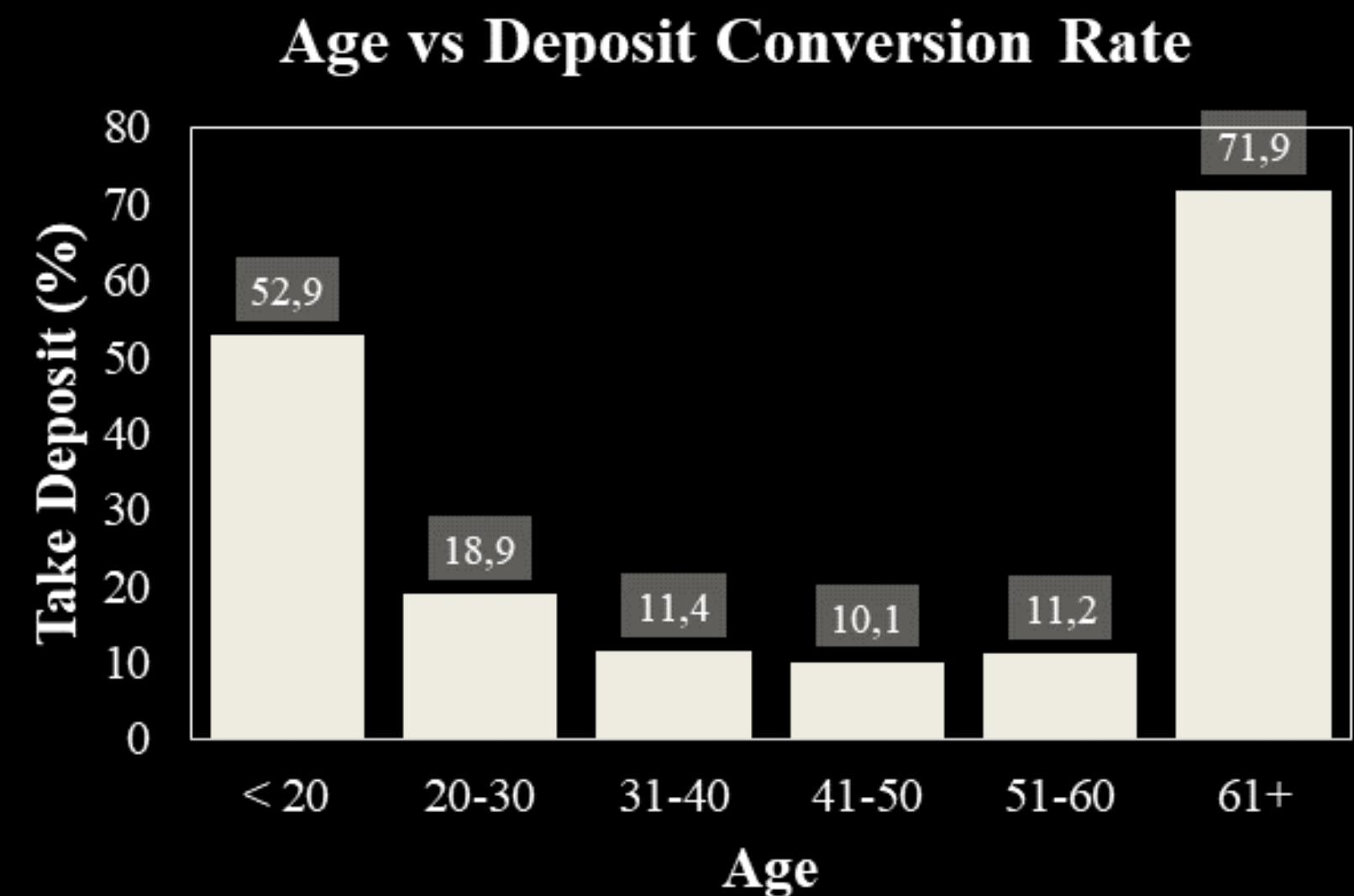


Recommend types of customer who likely to take deposit based on exploratory data analysis.

01

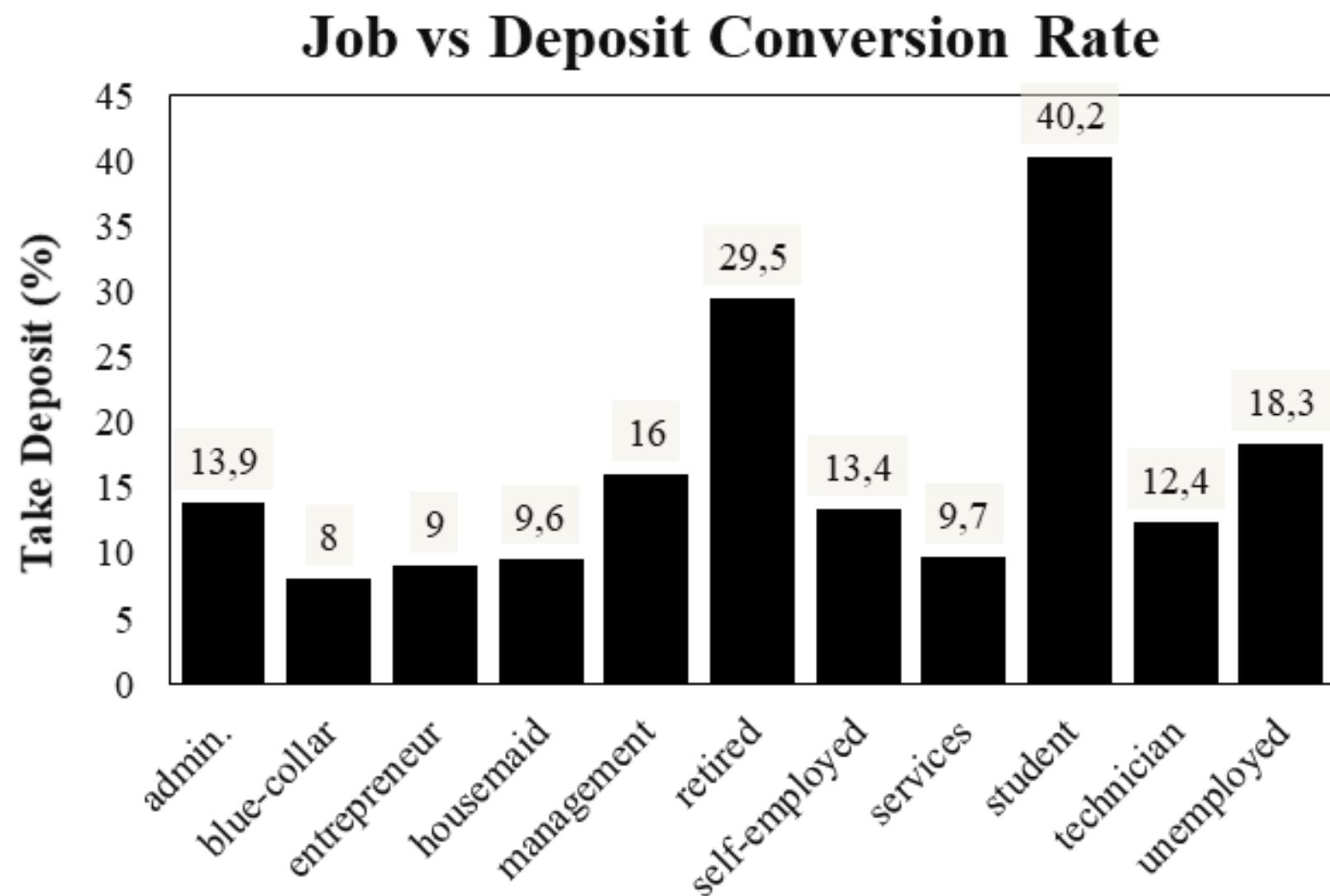
# How customers age affect deposit conversion rate?

Customers with age less than 20 year old and more than 60 year old have higher conversion rate.



# 02

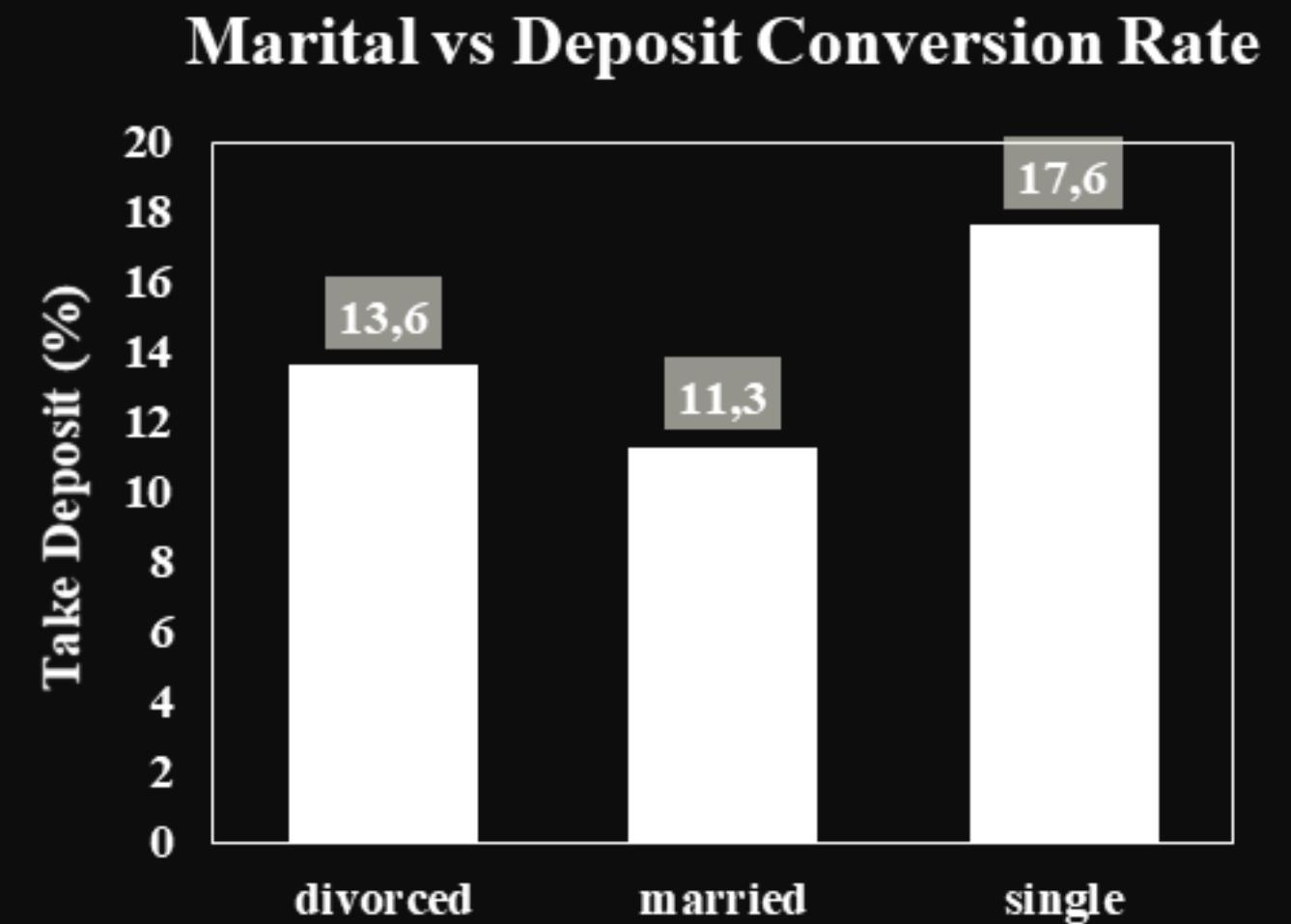
## How customers job affect deposit conversion rate?



Related to age, students and retired customers have higher conversion rate. Also unemployed, these indicates, customers who have job less interest to take deposit.

# How customers marital status affect deposit conversion rate?

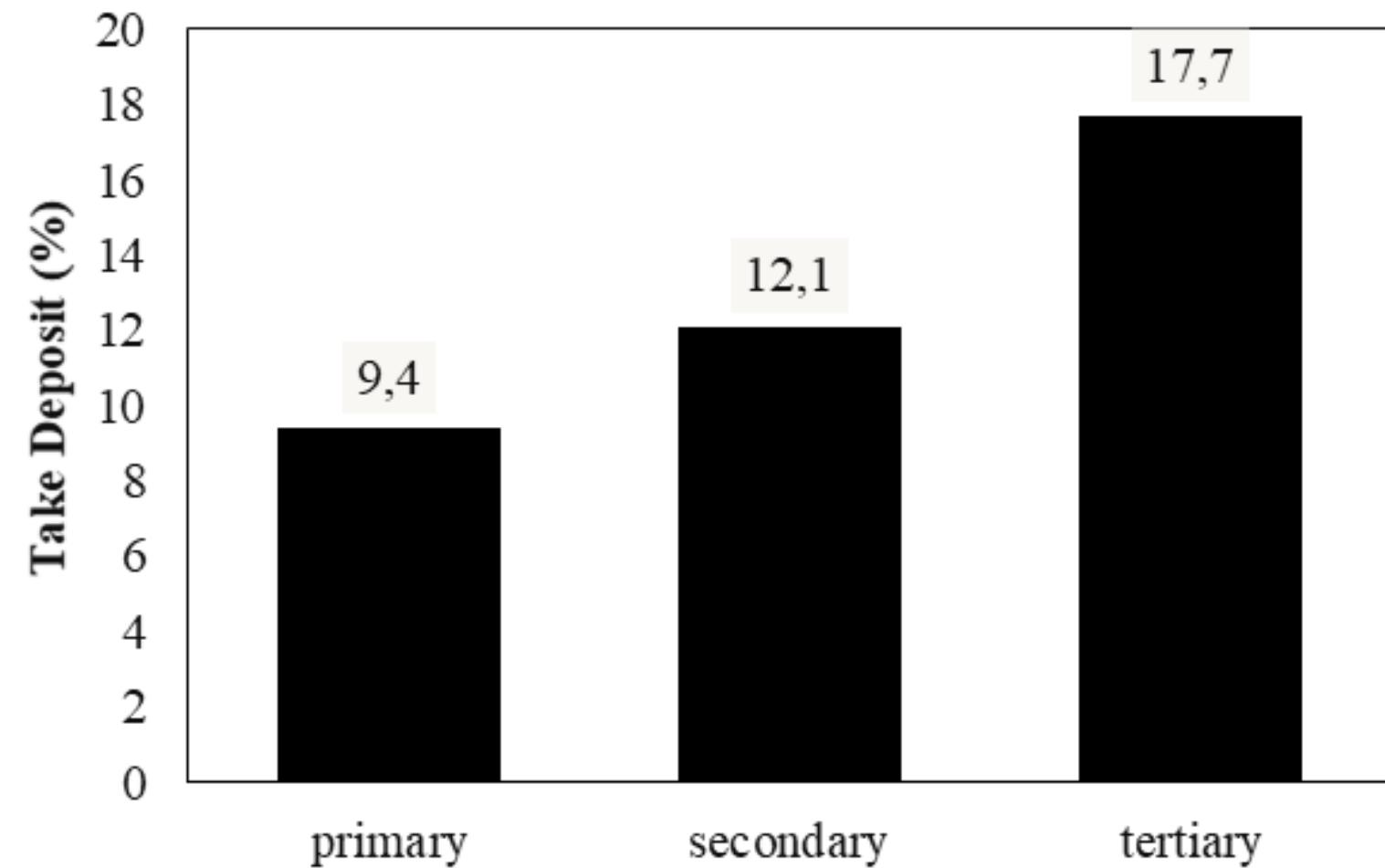
Customers who single (single and divorced) have higher deposit conversion rate.



# 04

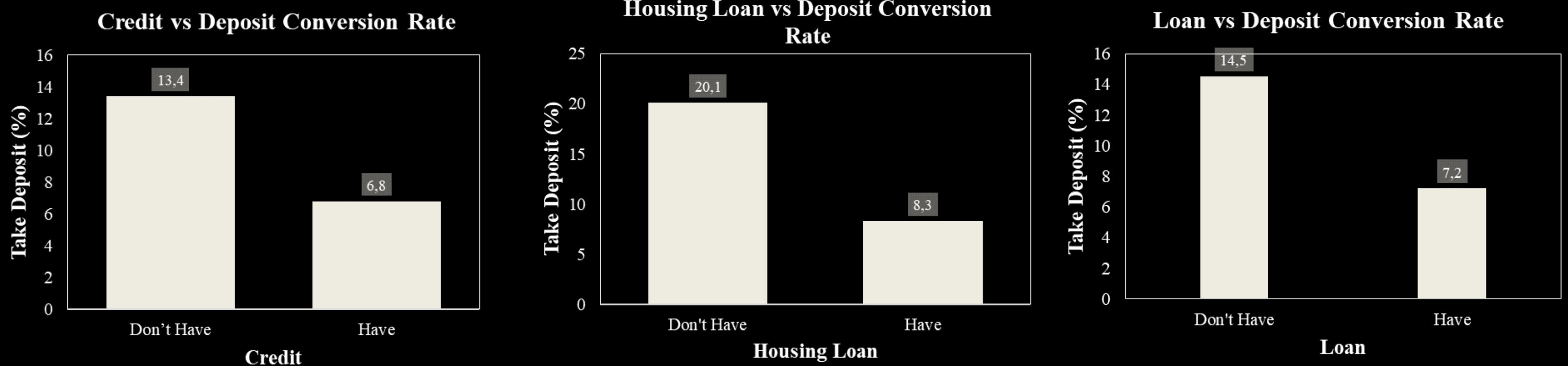
## How customers education affect deposit conversion rate?

**Education vs Deposit Conversion Rate**



Customers with higher education have a higher rate deposit conversion.

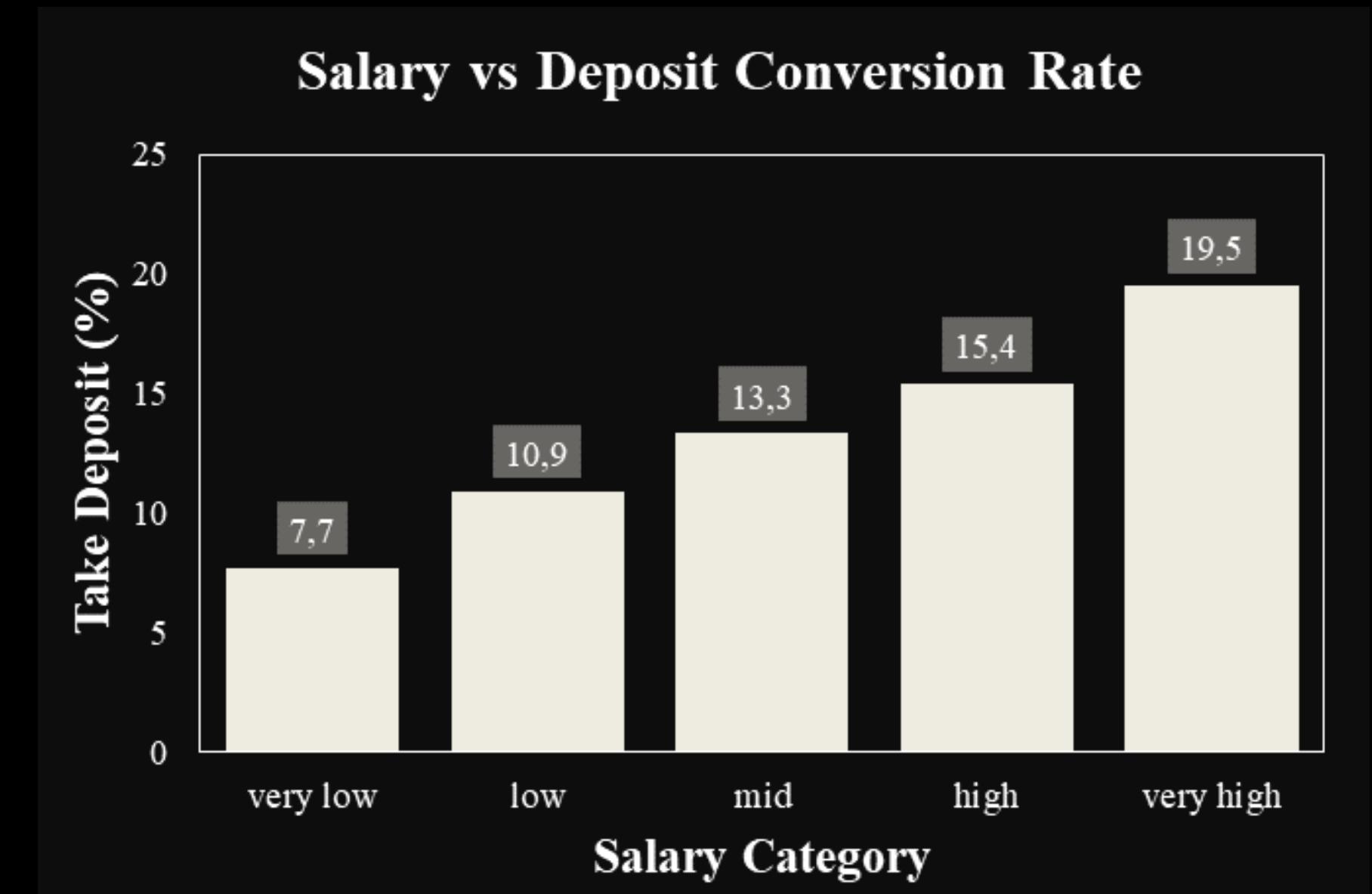
# How customers loan affect deposit conversion rate?



Customers tend to take deposit if they don't have any loan or credit.

# How customers salary affect deposit conversion rate?

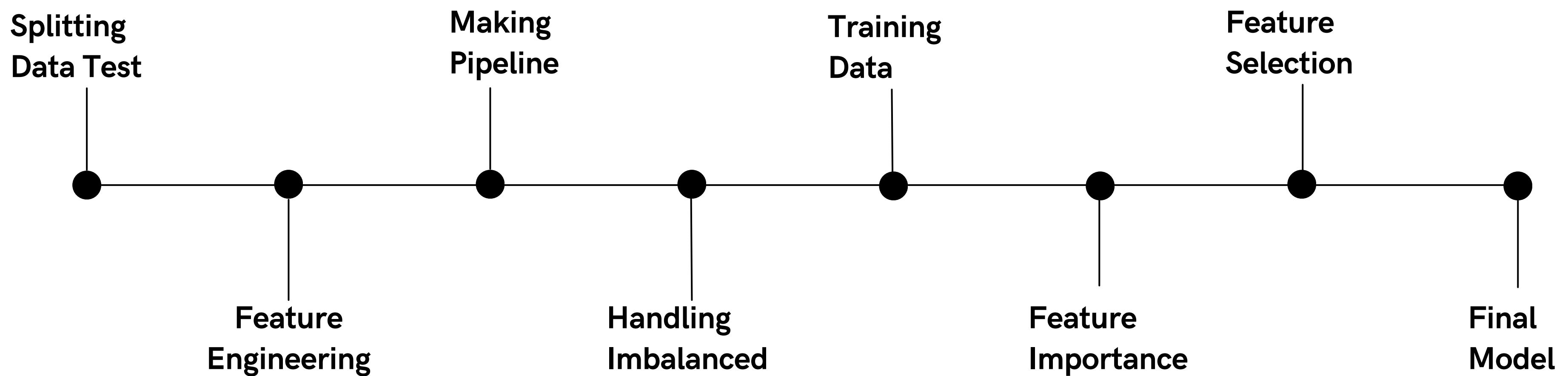
Customers who have higher salary tend to take deposit.



# 02 BUILDING MACHINE LEARNING

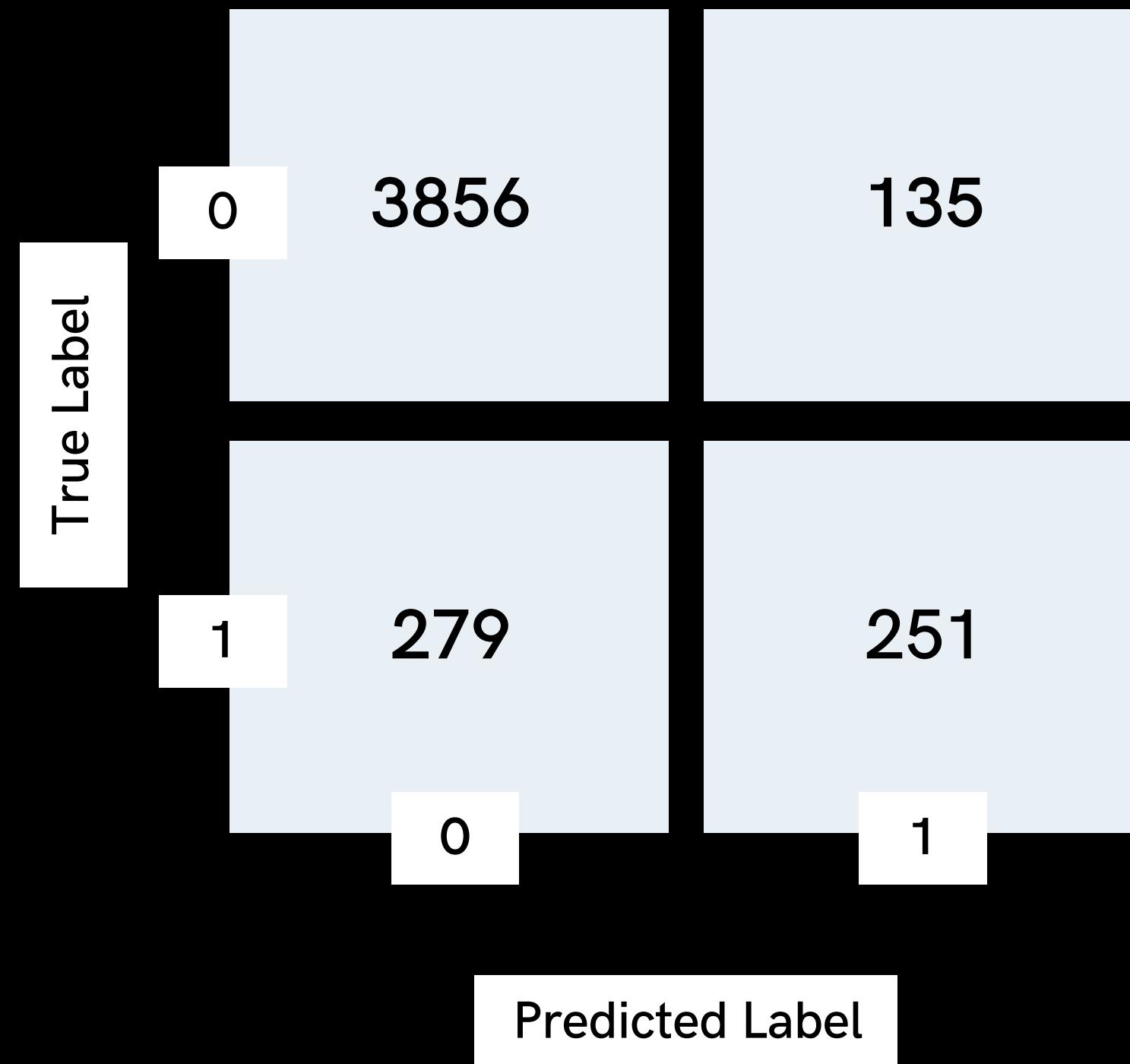


# Workflow Building Model



# Random Forest

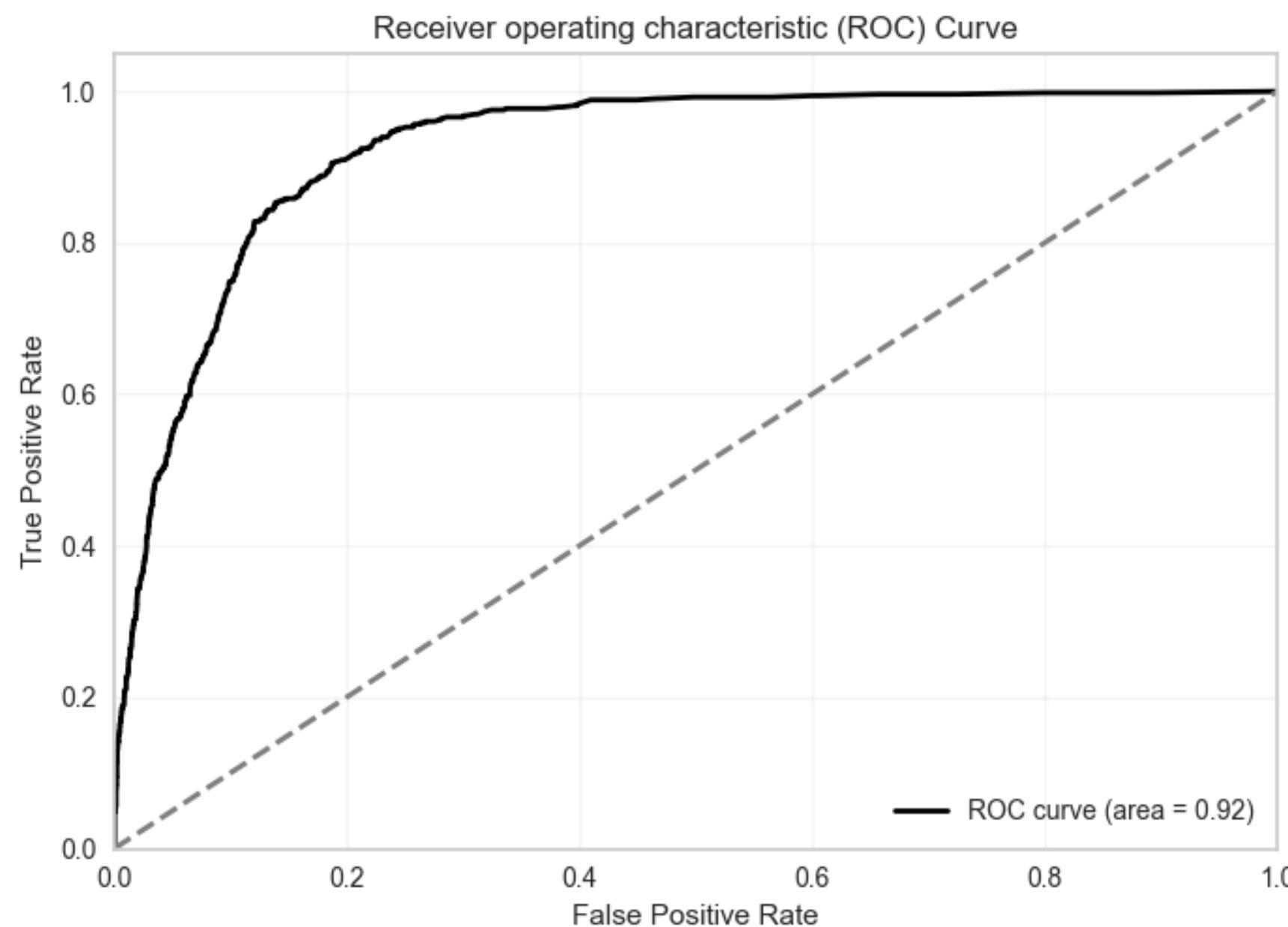
Precision Score = 65%



This model succeed handling imbalanced dataset.

Have higher precision compared to other model which have 30-40%. Random Forest Increased 25-35% precision score.

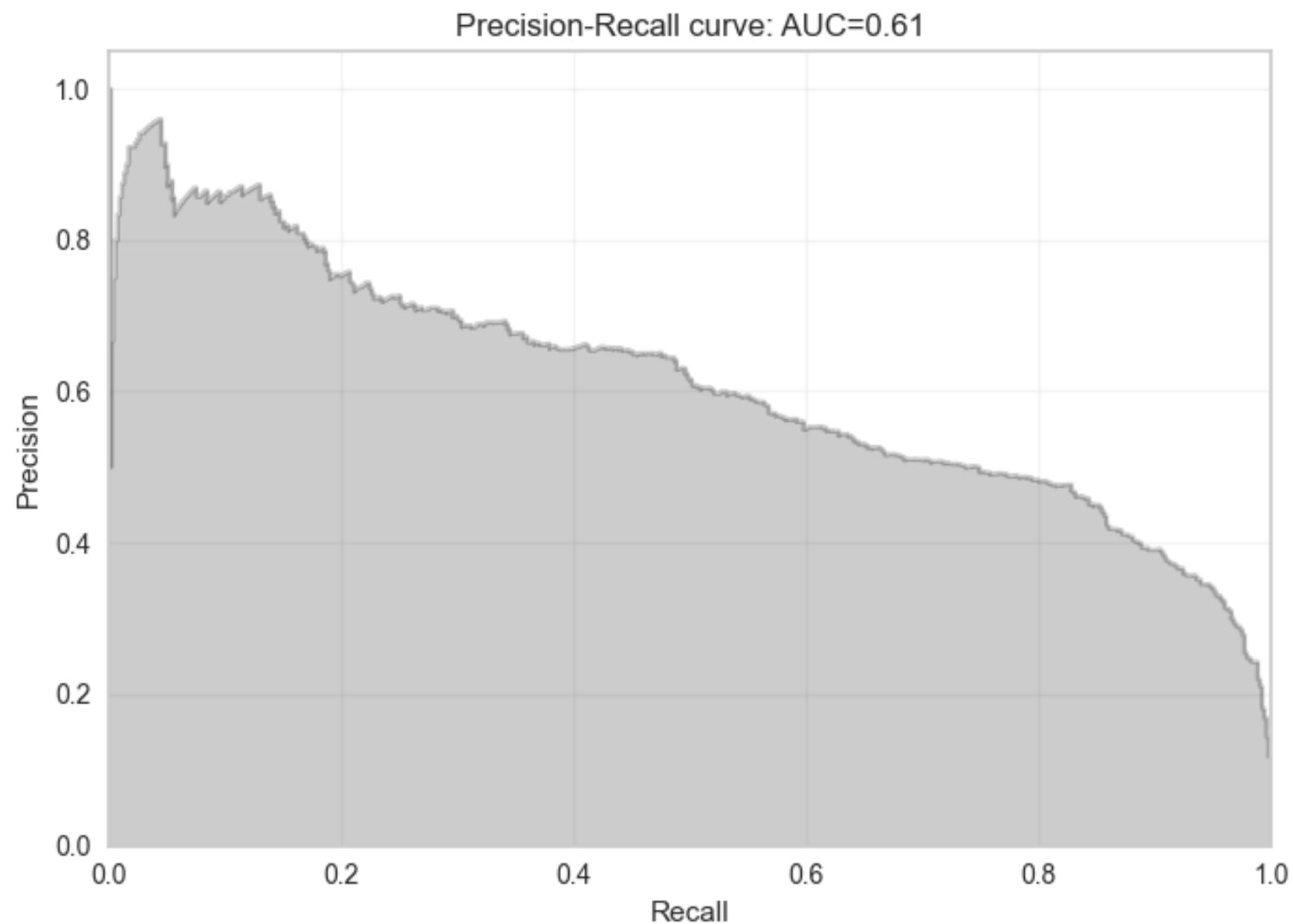
# ROC Graph



Precision may not be high,  
but ROC-AUC score is  
92%.

Meaning: model perform  
well on distinguishing  
between the positive and  
negative classes.

# Precision-Recall



**Model has moderate trade-off.**

# Summary



# Promising Customers

## Early 20's, 30's, and 60's +

This age make higher percentage of deposit conversion rate.

## Job and Education

Management, unemployed, students, and retired customers tend to take deposit.

Higher Education makes conversion rate higher.

## Single

Customers who single or divorced tend to have higher deposit conversion rate.

## Salary up to 800 euro / year

Higher salary tend to take deposit.