



VIT-AP
University

BANKING INVESTMENT PREDICTION USING PYCARET

Presented by: Team 21

OVERVIEW

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ABSTRACT:

This AI/ML project utilizes PyCaret to predict investment opportunities in banking. It involves data exploration, cleaning, and feature engineering for optimal model performance. PyCaret automates model selection, hyperparameter tuning, and interpretability analysis. The project is documented comprehensively, providing insights into model evaluation and influential features. The streamlined approach ensures transparency and delivers valuable investment recommendations.



INTRODUCTION

- The aim of this AI/ML project is to predict investment opportunities in the banking sector using a dataset specifically tailored for investment prediction. Leveraging the power of Pycaret, a Python library for automating the end-to-end machine learning process, we intend to build a robust model that can provide valuable insights into potential investment choices within the banking industry.





OBJECTIVES

- **Data Exploration and Cleaning:**

- Understand and analyze the provided banking dataset.
- Handle missing values, outliers, and any other data inconsistencies

- **Model Building:**

- Utilize Pycaret to automatically compare and evaluate various machine learning algorithms.
- Fine-tune hyperparameters for the selected models to enhance predictive accuracy.

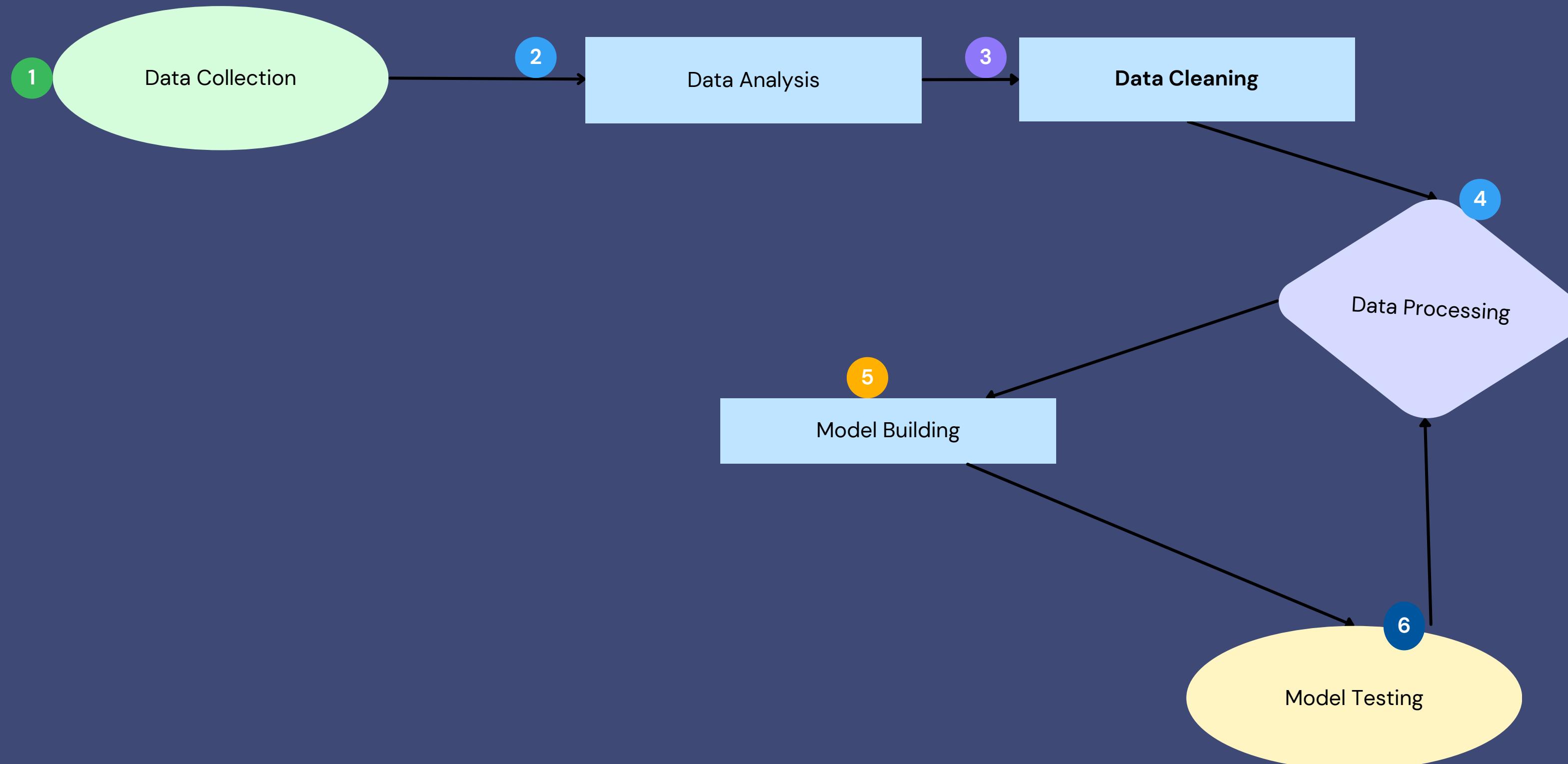
- **Evaluation:**

- Assess the model's performance using appropriate metrics.
- Identify the strengths and weaknesses of the chosen model.

- **Feature Engineering:**

- Identify and create relevant features for the investment prediction task.
- Transform and preprocess the data to improve model performance.

Flow Chart



Prediction Summary

Job

All

Education

All

Loan

Search

no

unknown

Housing

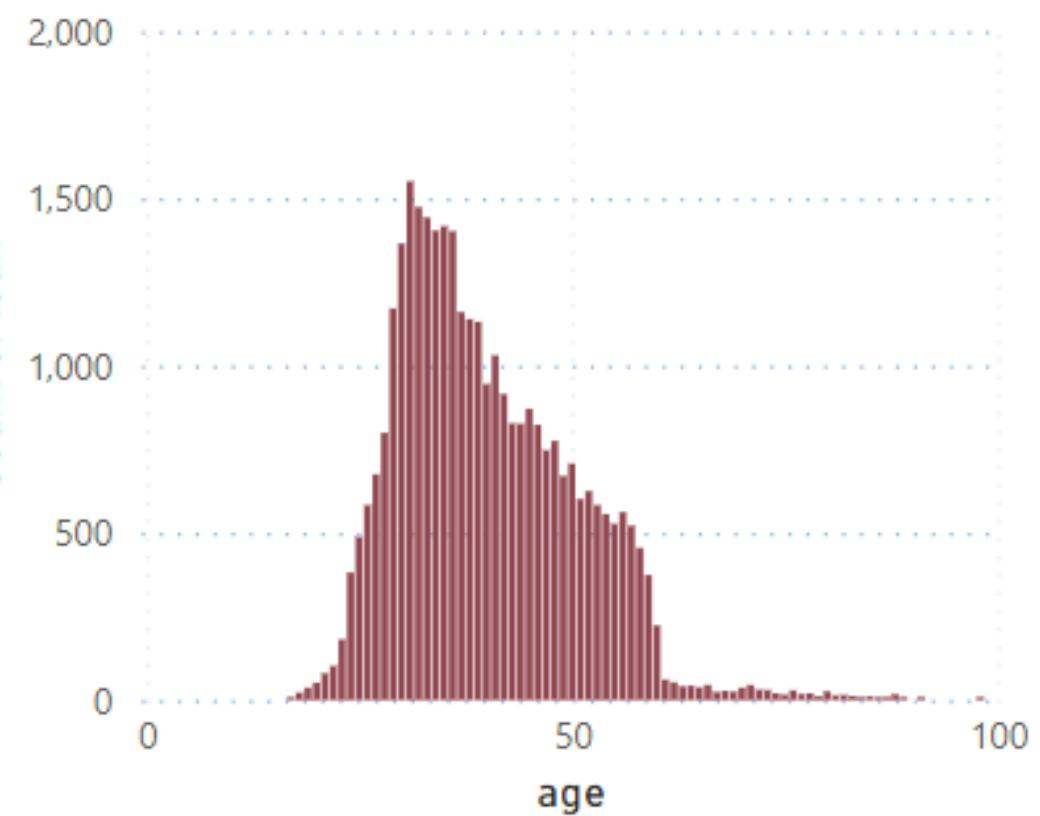
Search

no

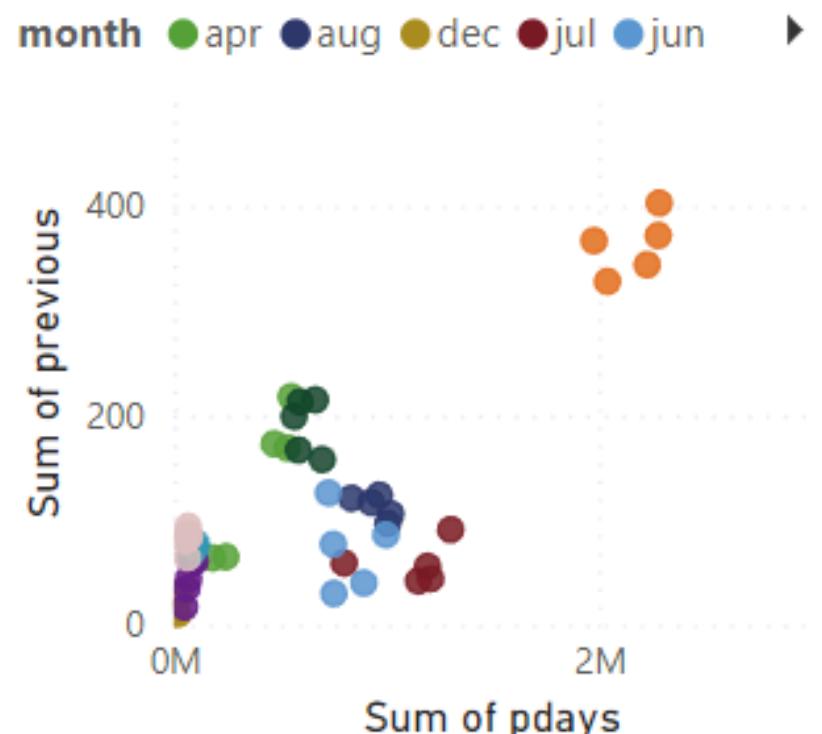
unknown

yes

Count of loan by age



Sum of pdays and Sum of previous
by day_of_week and month

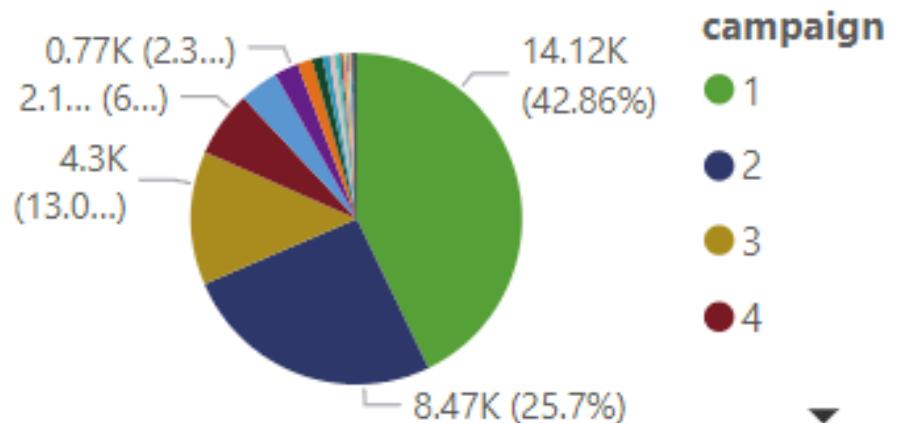


Sum of age

Sum of age

1M

Count of poutcome by campaign

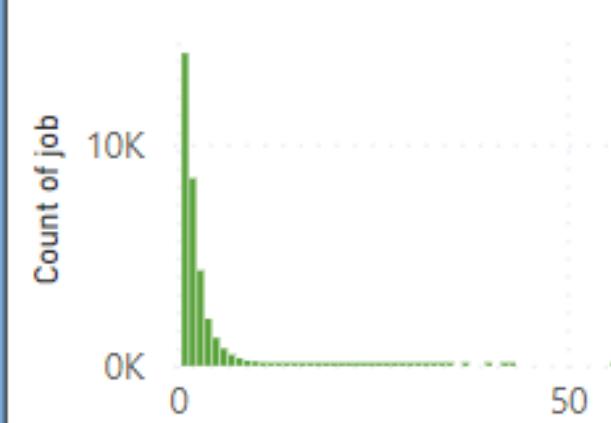


Sum of duration

Sum of duration

9M

Count of job by campaign



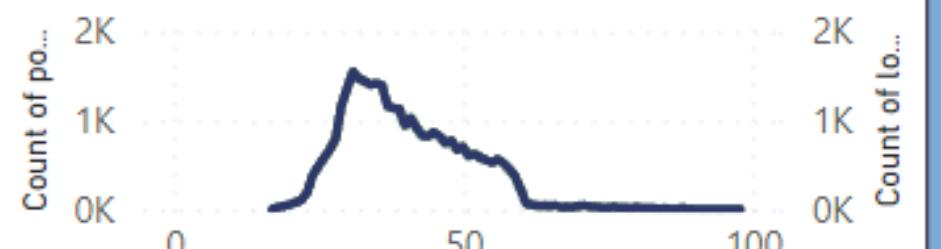
Count of marital and Count of job by age

● Count of marital ● Count of job



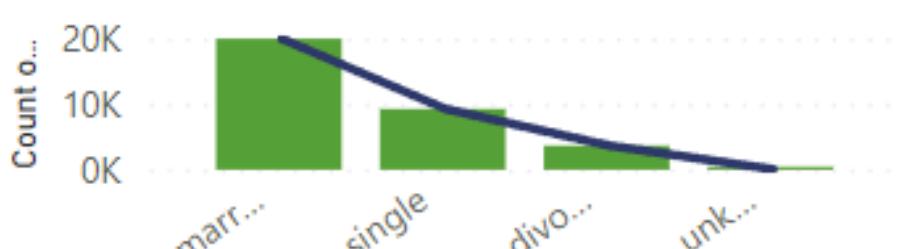
Count of poutcome and Count of loan by
sum of age

● Count of poutcome ● Count of loan



Count of job and Count of poutcome by
marital

● Count of job ● Count of poutcome



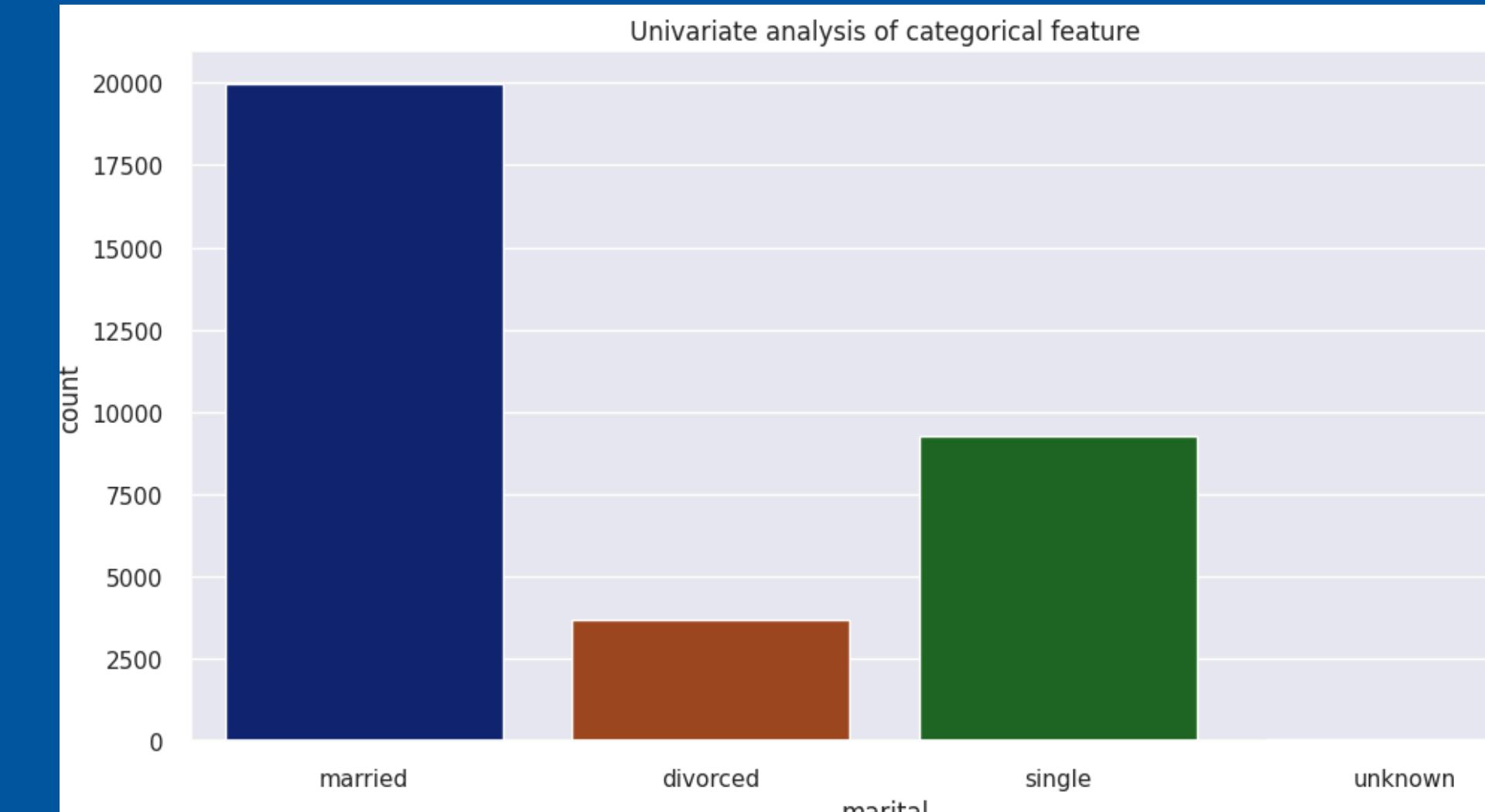
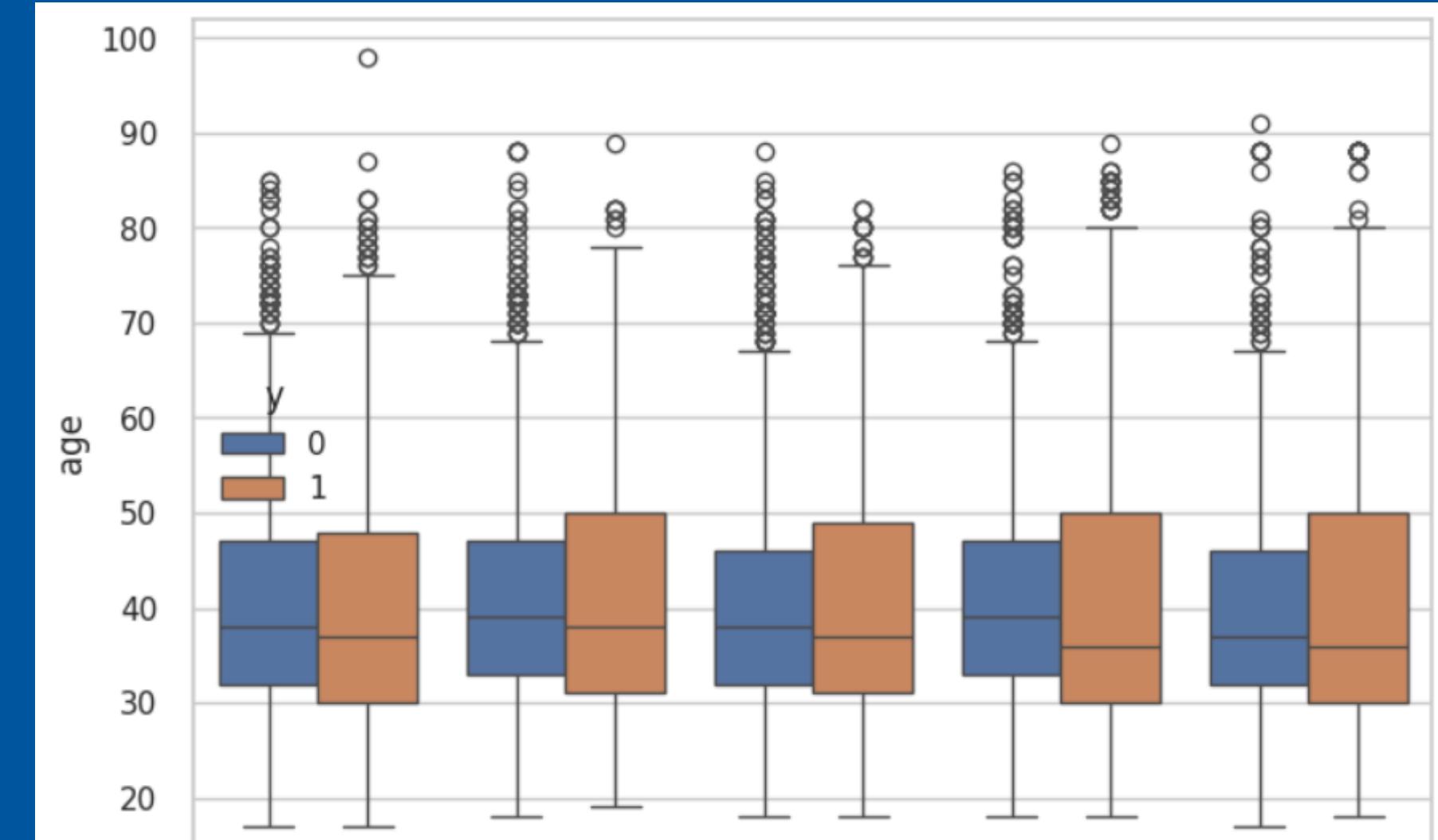
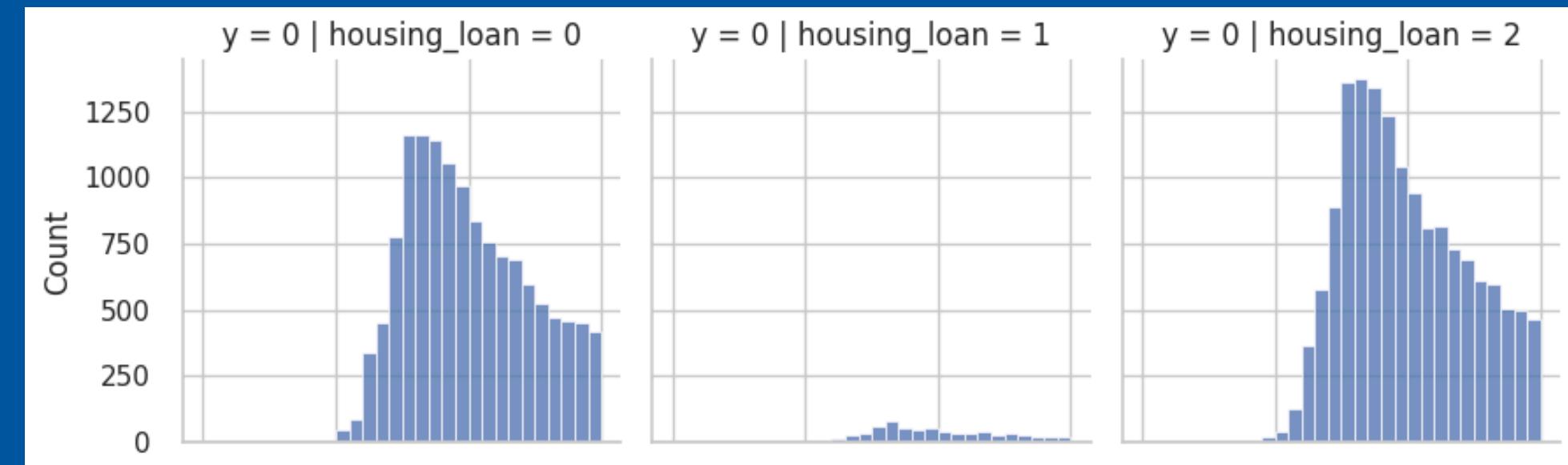
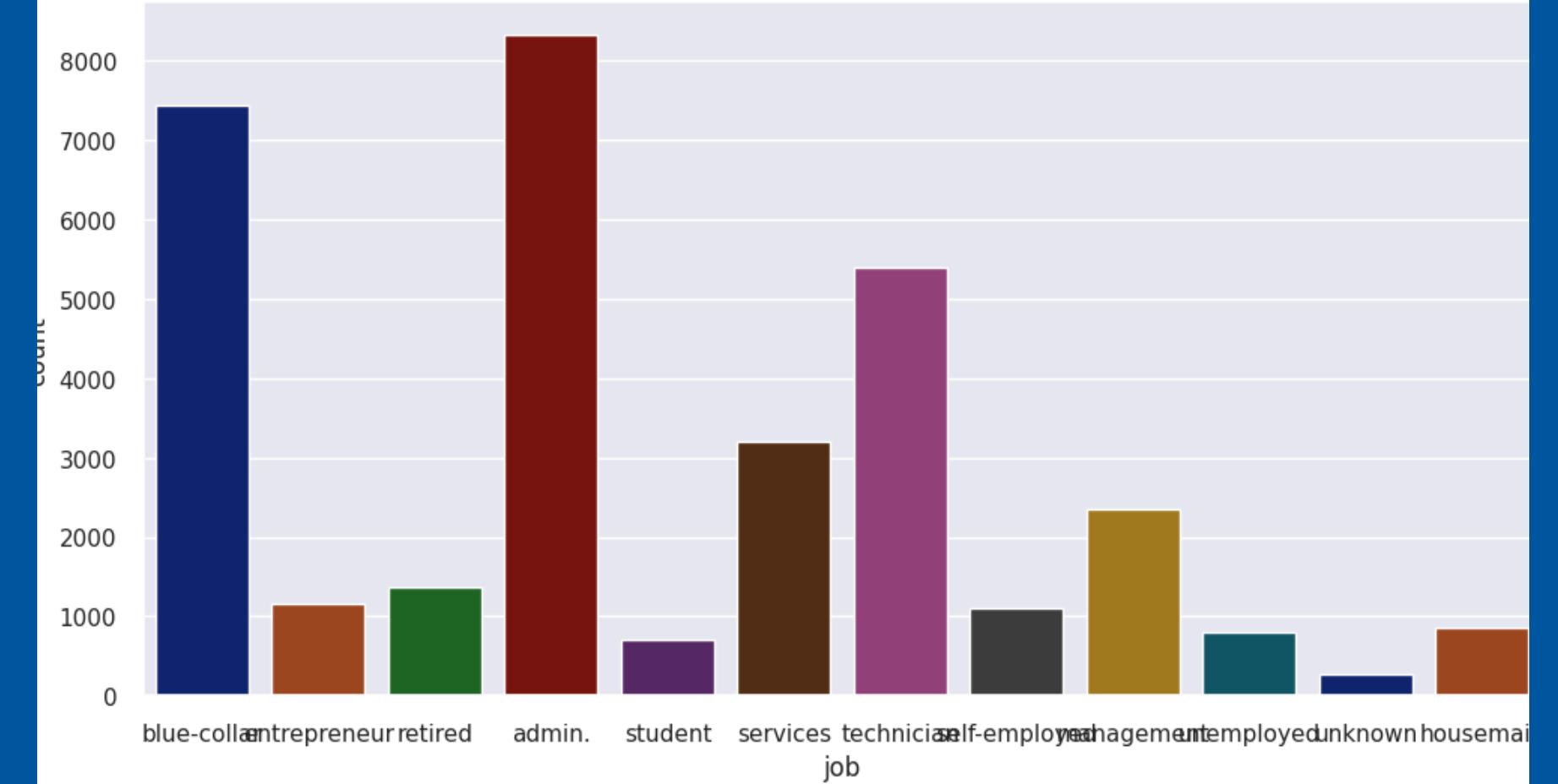
Count of education by contact
and housing

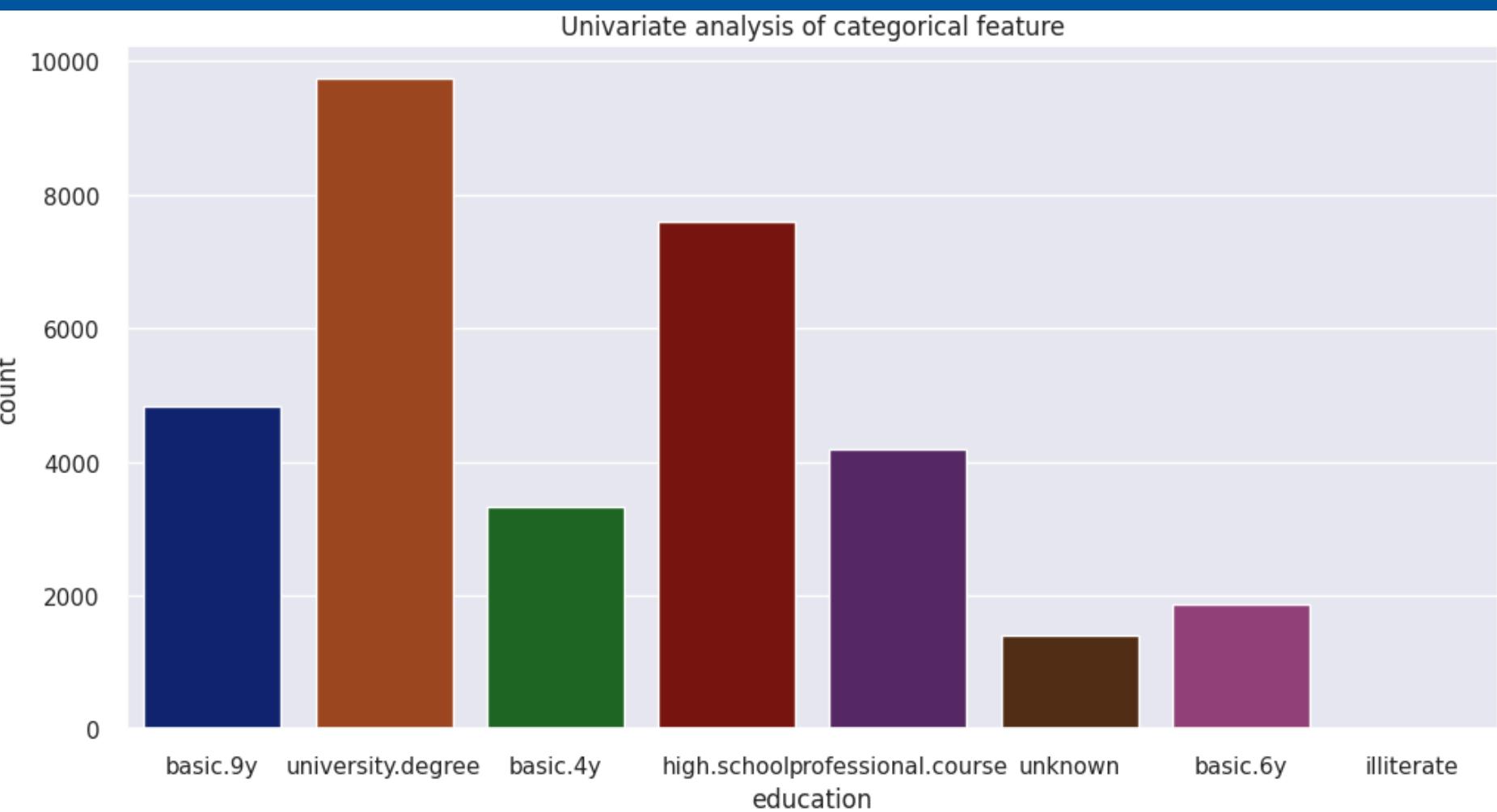
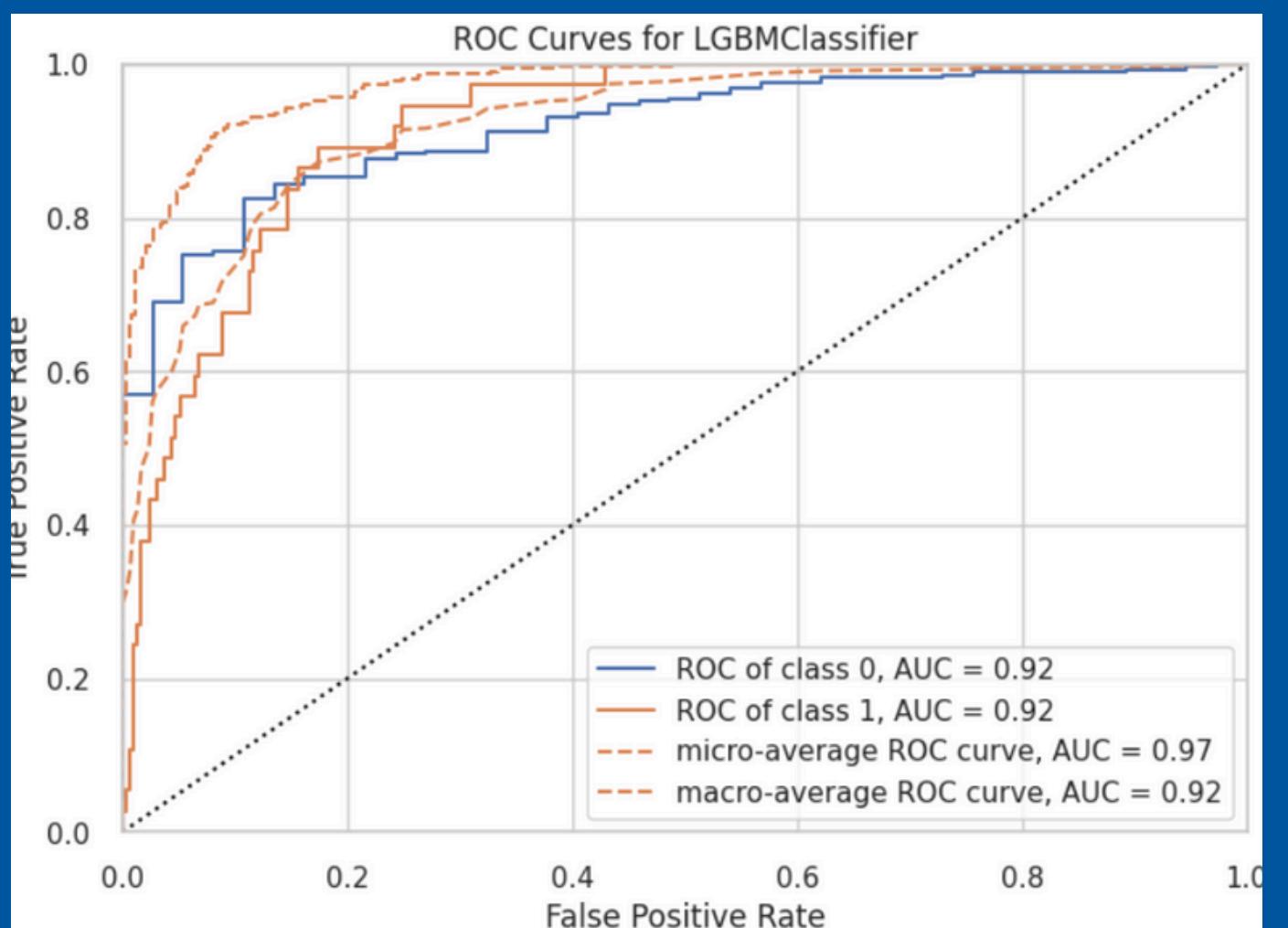
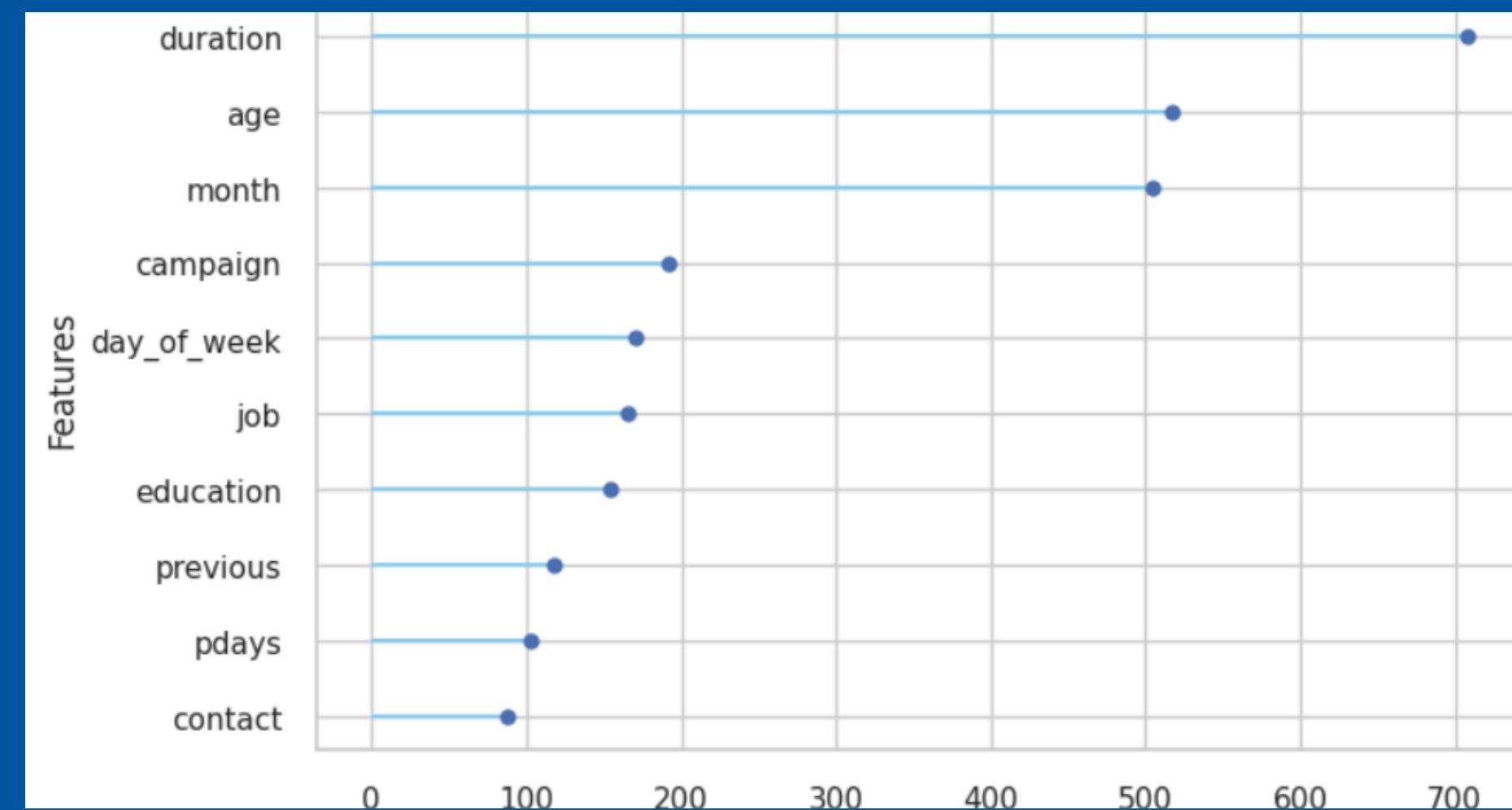
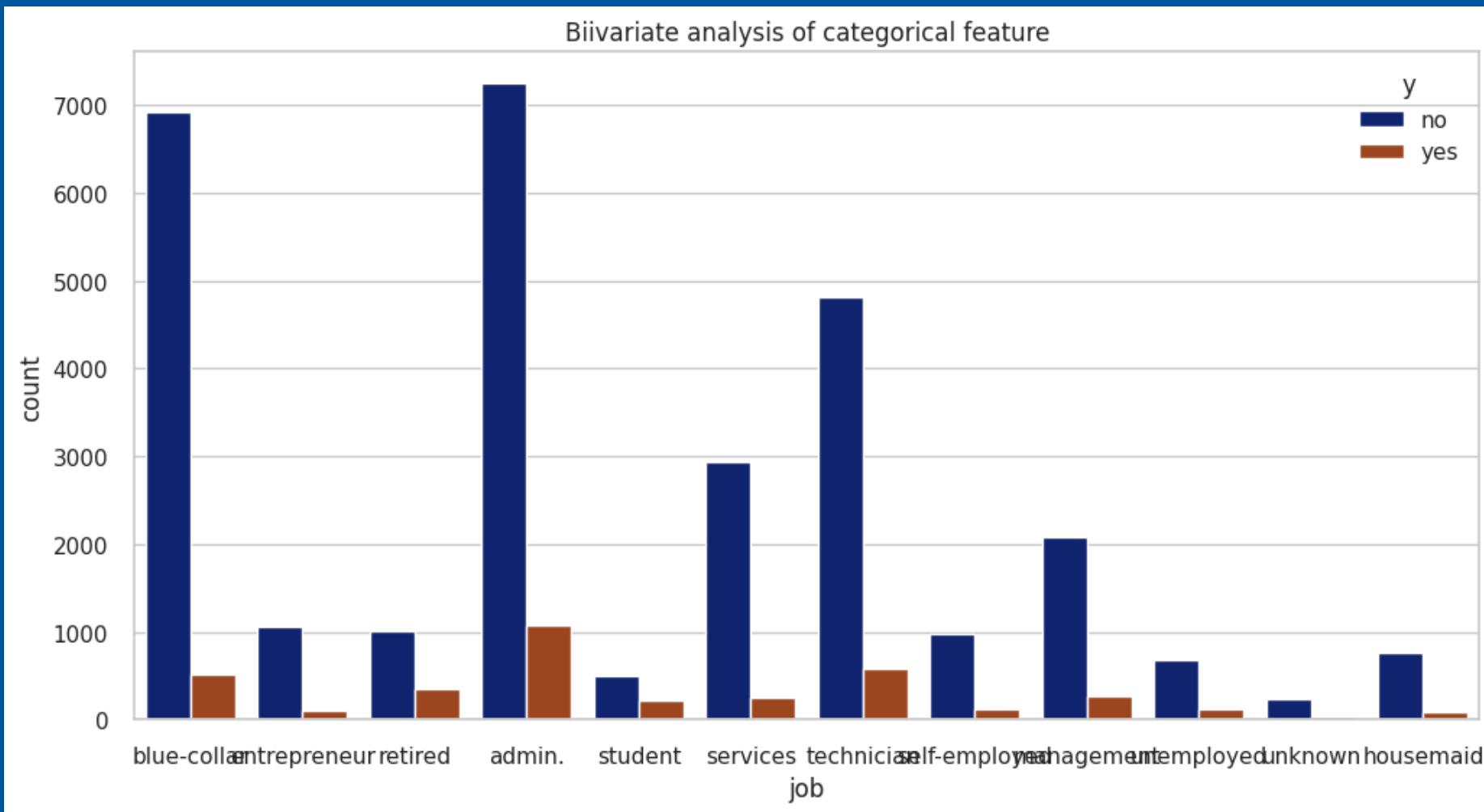
housing ● no ● unknown ● yes



DATA VISUALIZATIONS

Univariate analysis of categorical feature





Model Testing

S.NO	Model	Accuracy
1	Light Gradient Boosting Machine	0.9112
2	Gradient Boosting Classifier	0.9090
3	Extreme Gradient Boosting	0.9084
4	Random Forest Classifier	0.9057
5	Ada Boost Classifier	0.9036
6	Linear Discriminant Analysis	0.9028
7	Logistic Regression	0.9021
8	Extra Trees Classifier	0.9006

Web Page

Banking – Investment Prediction

2140.04

1020.04 +5.2%

1340.04 +5.2%

-3.9%

+7.1% 1150.04

+5.2%

9%

Age:

Job: Admin

Marital: Divorced

Education: Basic 4y

Default (Yes/No): No

Housing Loan (Yes/No): No

Personal Loan (Yes/No): No

Contact: Cellular

Month: Apr

Day of Week: Fri

Duration

Campaign

Pdays

Previous

Previous Attempt Failure

Submit

OUR TEAM 21

21bce7861-Chaitanya sekhar V

21bce7065-Lakshman G

21bce7204-Venkata Revanth D

21bce7131-Kiran Pradeep V

21bce8873- Jaya Krishna

21bce7294-Lalith J

21bce8784-Mohan sai Ritesh

21bce9502-Gnana Prakesh

Thank You

Team 21