

Name: Project Week 10 (Bank Marketing Campaign)

Week 10: Deliverables

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Specialization: Data Science

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(Individual project)

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Solve the problems :

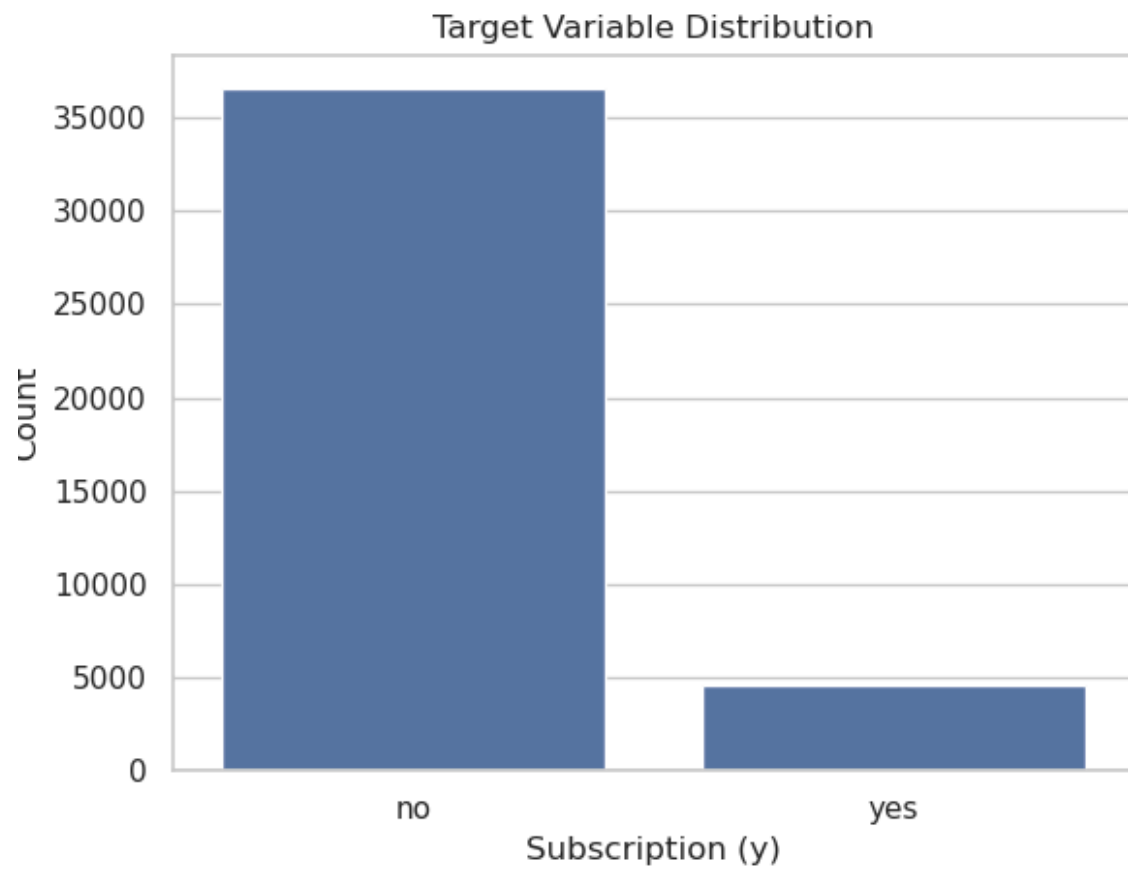
1. Problem Description
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### 1. Problem Description

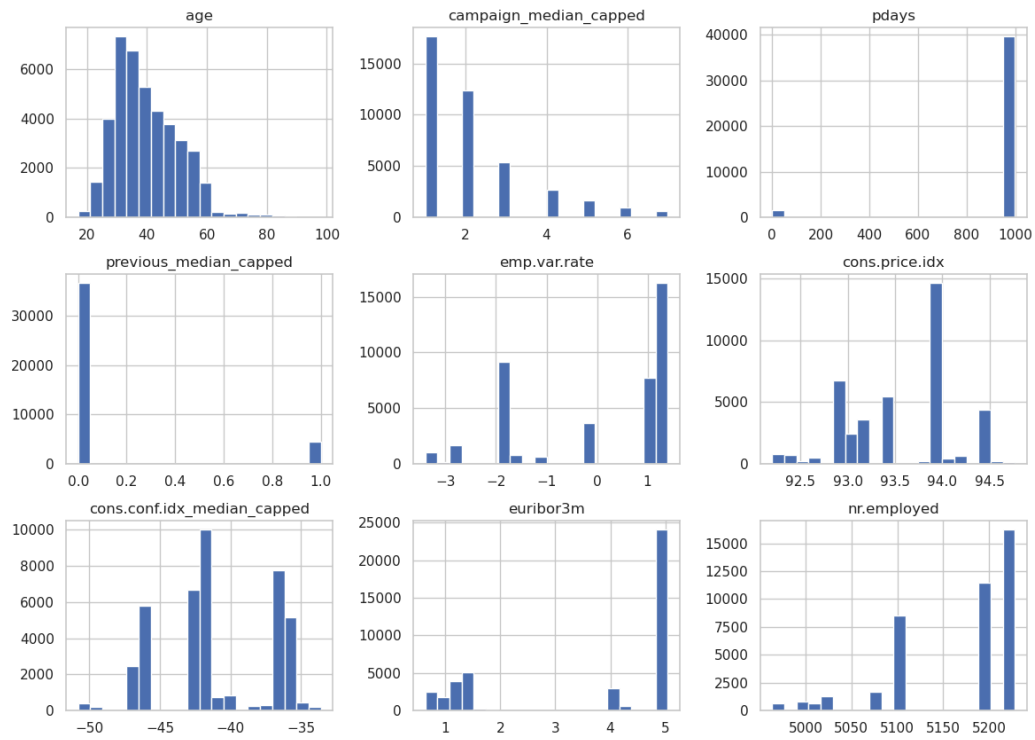
ABC Bank wants to sell its term deposit product to customers and before launching the product they want to develop a model which helps them in understanding whether a particular customer will buy their product or not (based on customer's past interaction with bank or other Financial Institution).

### 2. EDA performed on the data

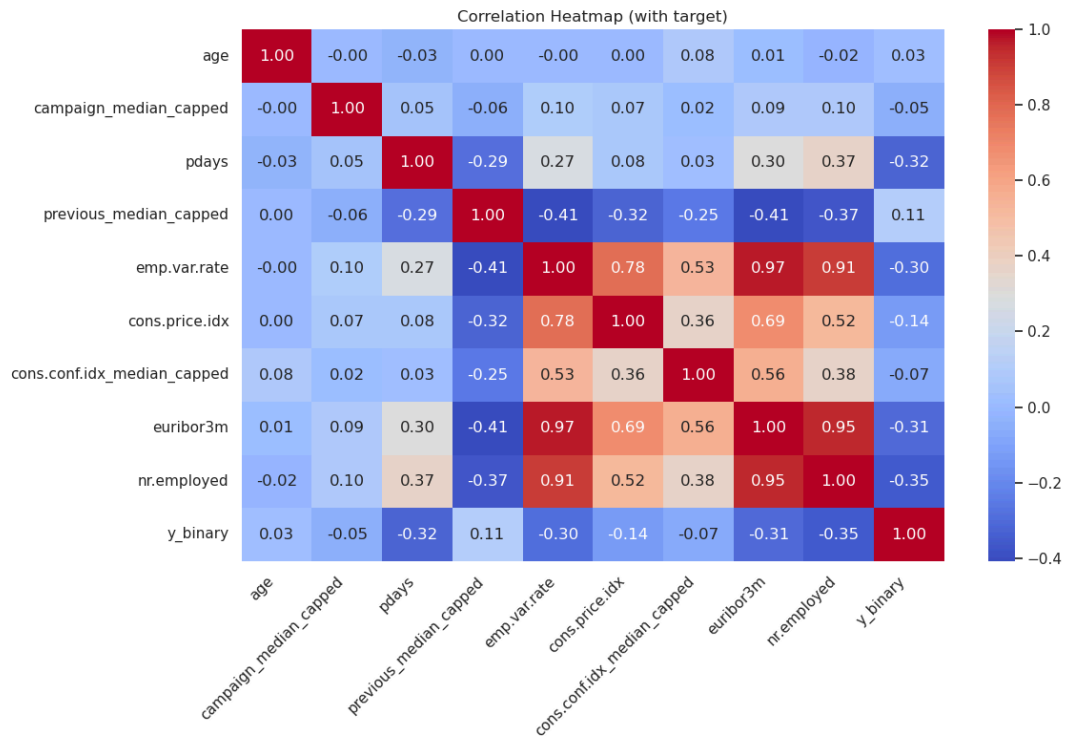
- Exploring Numerical values



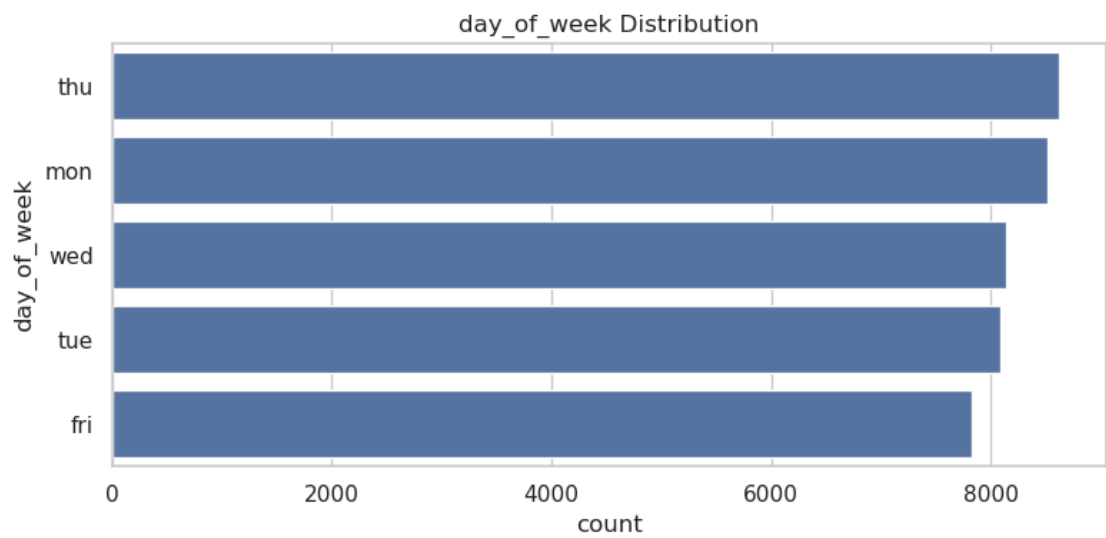
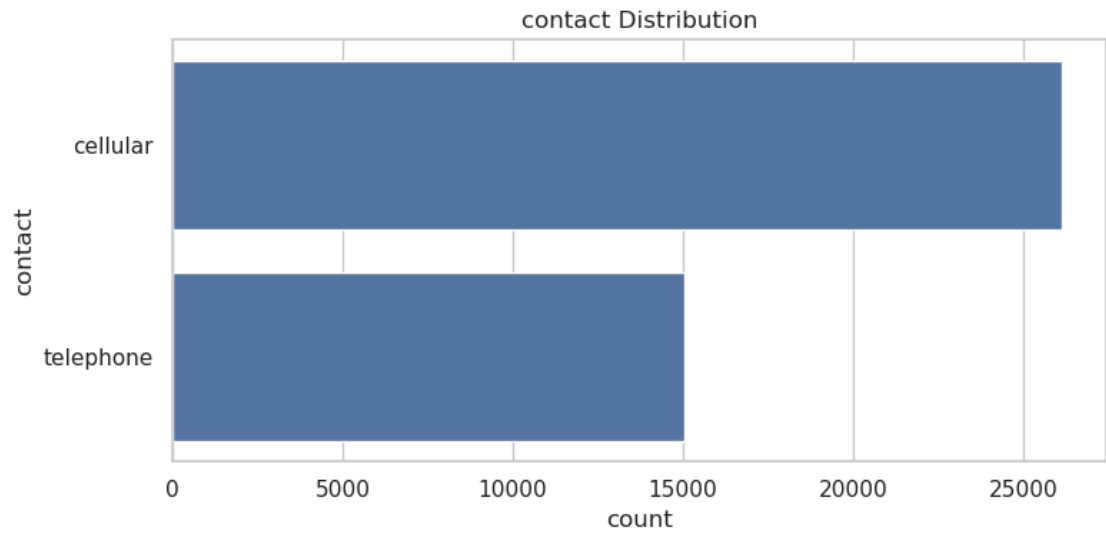
### Numerical Features Distribution

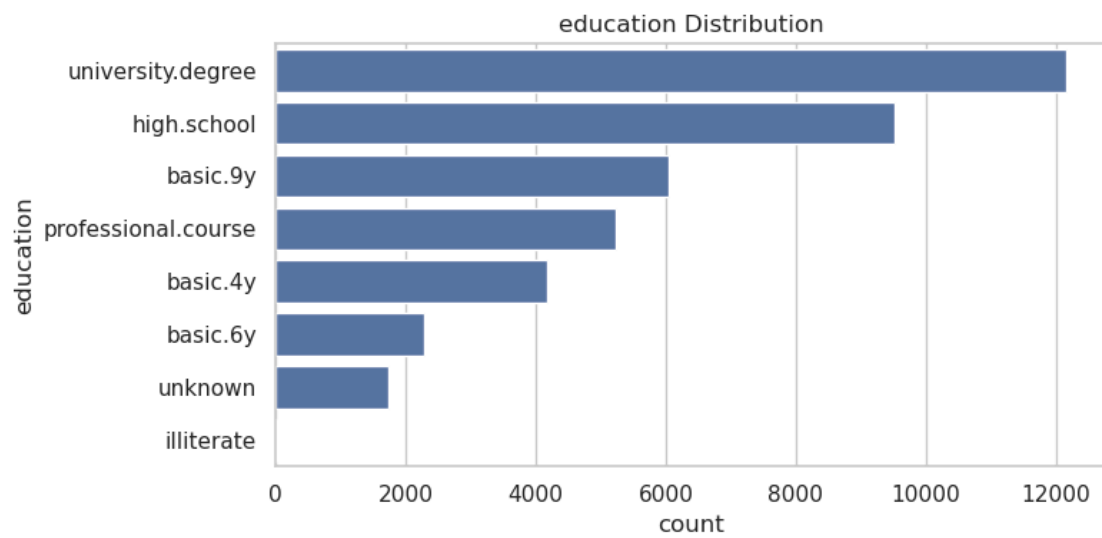
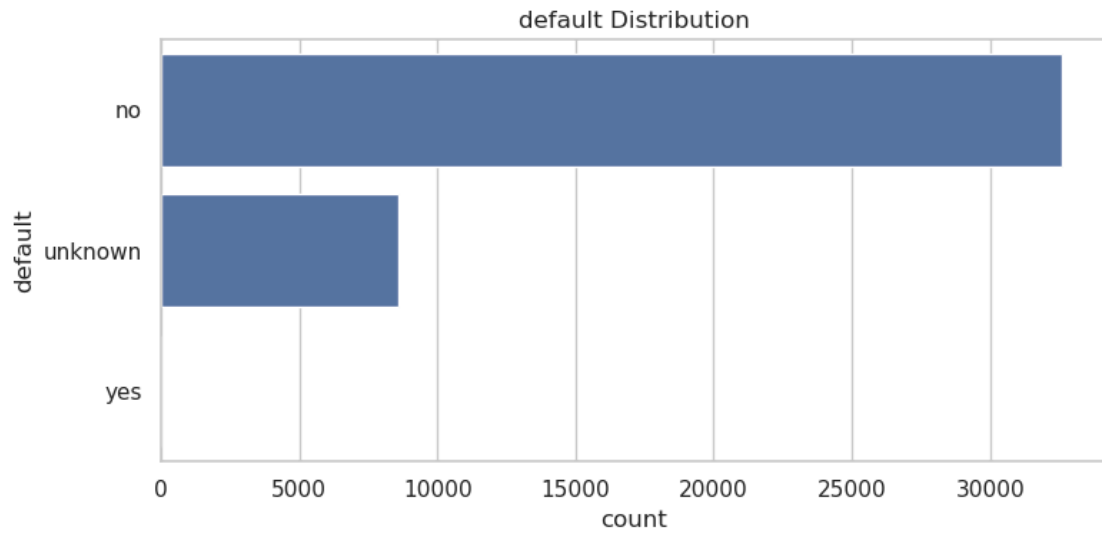


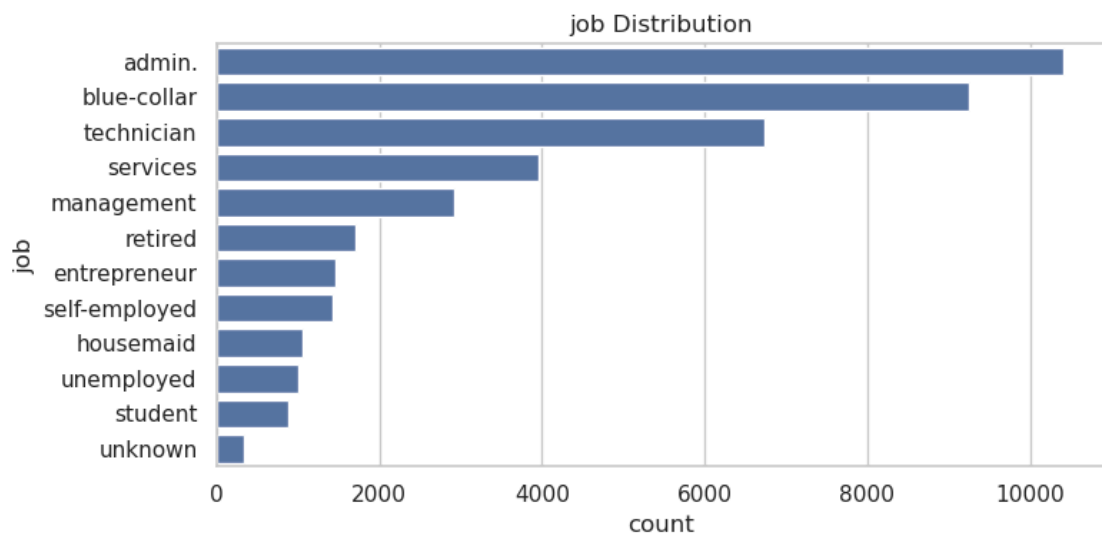
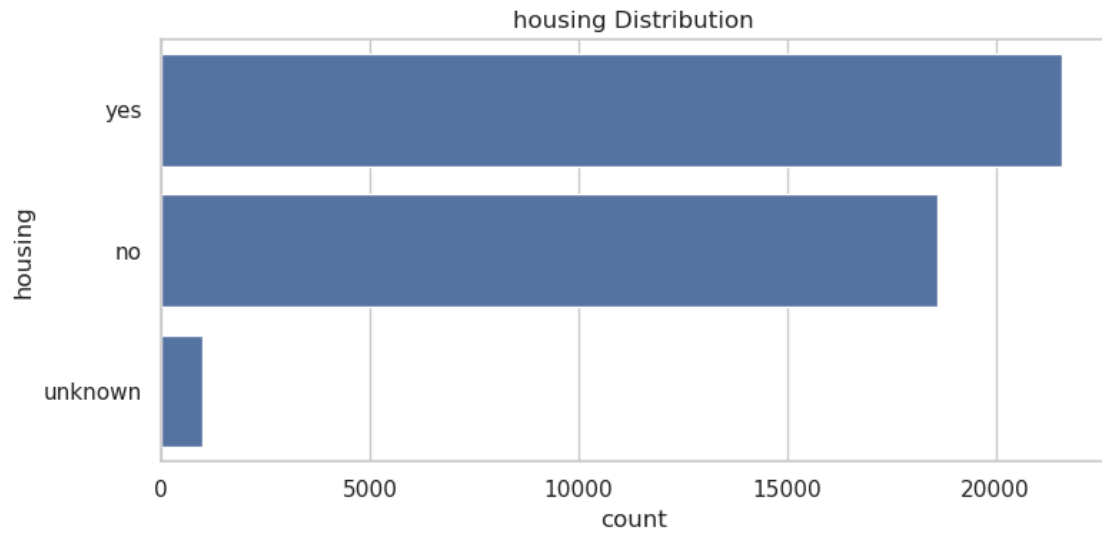
- Correlations among numerical feature along with the Output variable (desired target): y

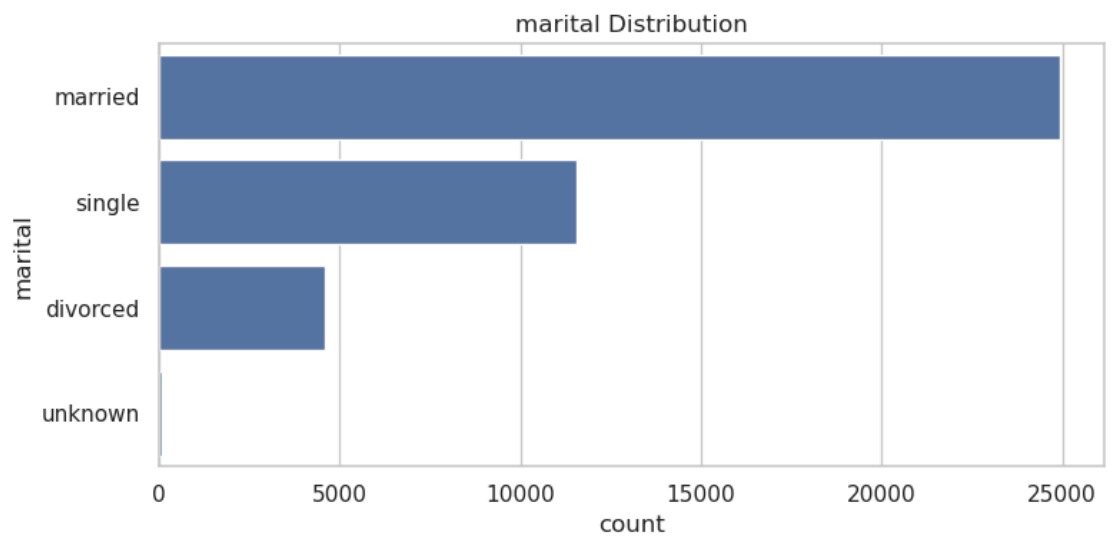
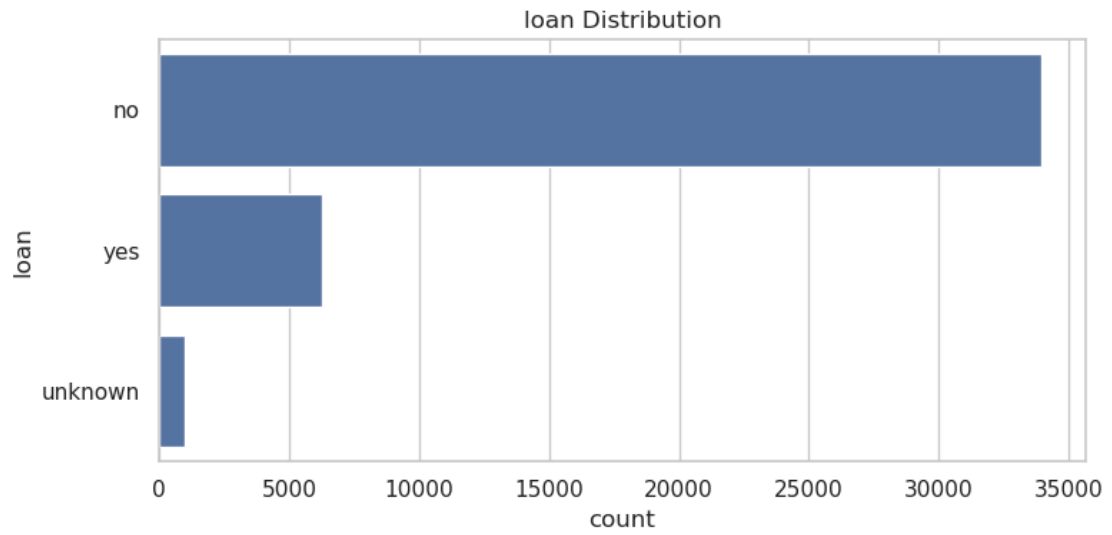


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- Feature-wise Explanation
  - emp.var.rate (Employment Variation Rate): More employment variation → less likely to subscribe (economic uncertainty?)
  - euribor3m (Euro Interbank Offered Rate - 3 Months) :Higher interest rates → less subscriptions (people may avoid locking into term deposits)
  - nr.employed (Number of Employees): High employment → possibly lower urgency to invest or switch products
- pdays: If recently contacted → more likely to subscribe, 999 = not contacted → less likely → explains negative correlation
- Exploring Categorical values

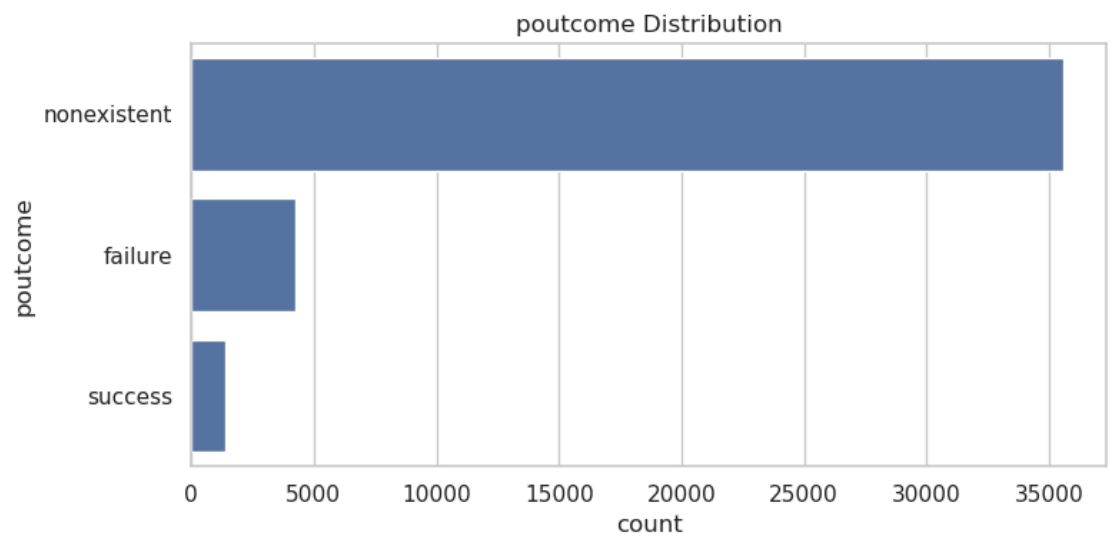
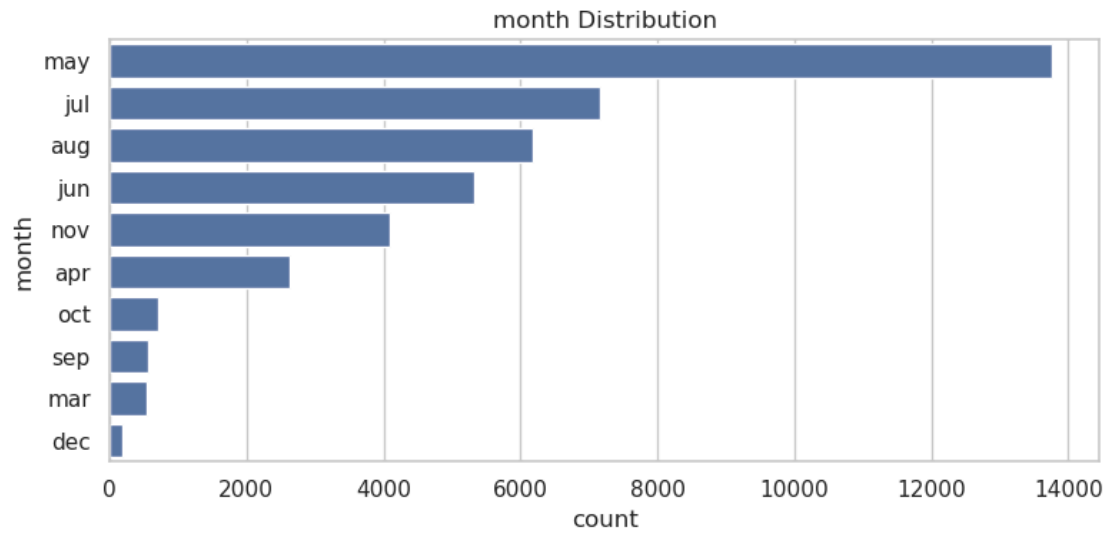












- **Box plot**

**What to Look  
For**

**Interpretation**

Clear separation  
in medians

Feature likely useful for prediction

Almost identical  
boxes

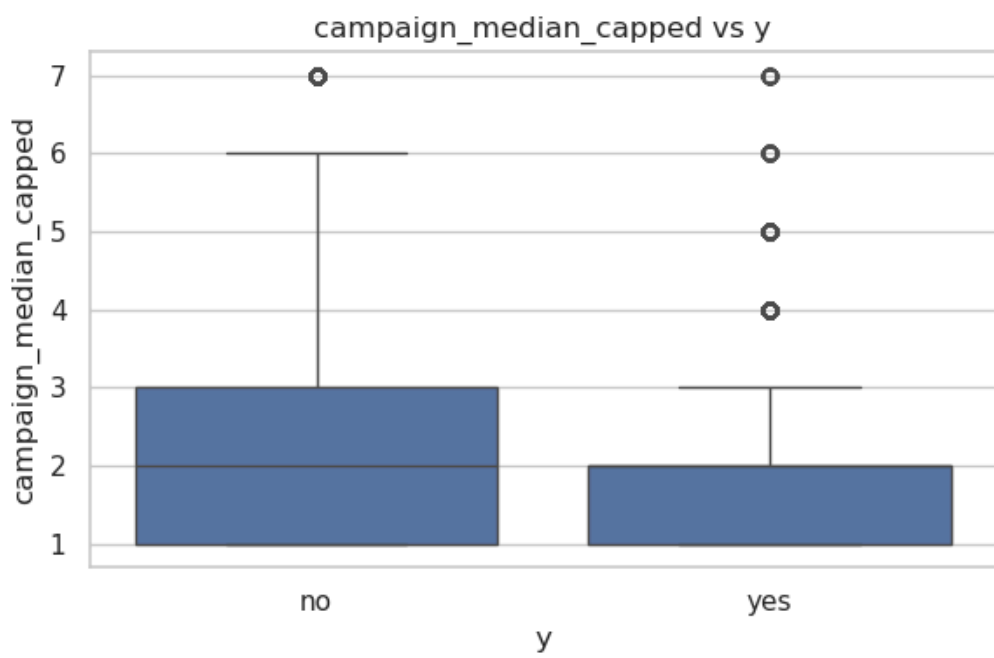
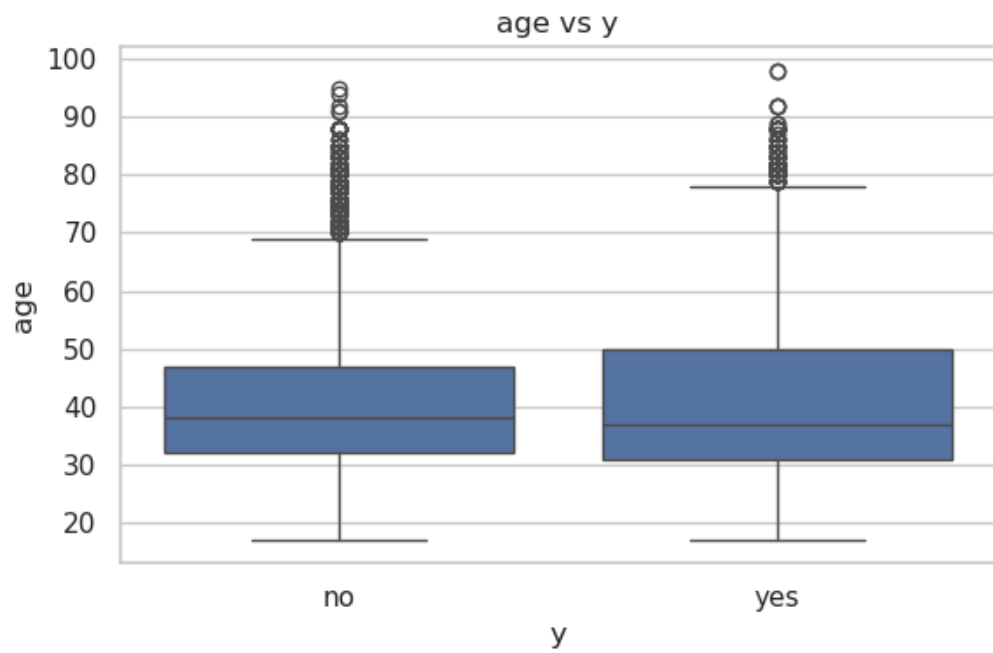
Feature likely **not** useful (little difference between  
yes/no)

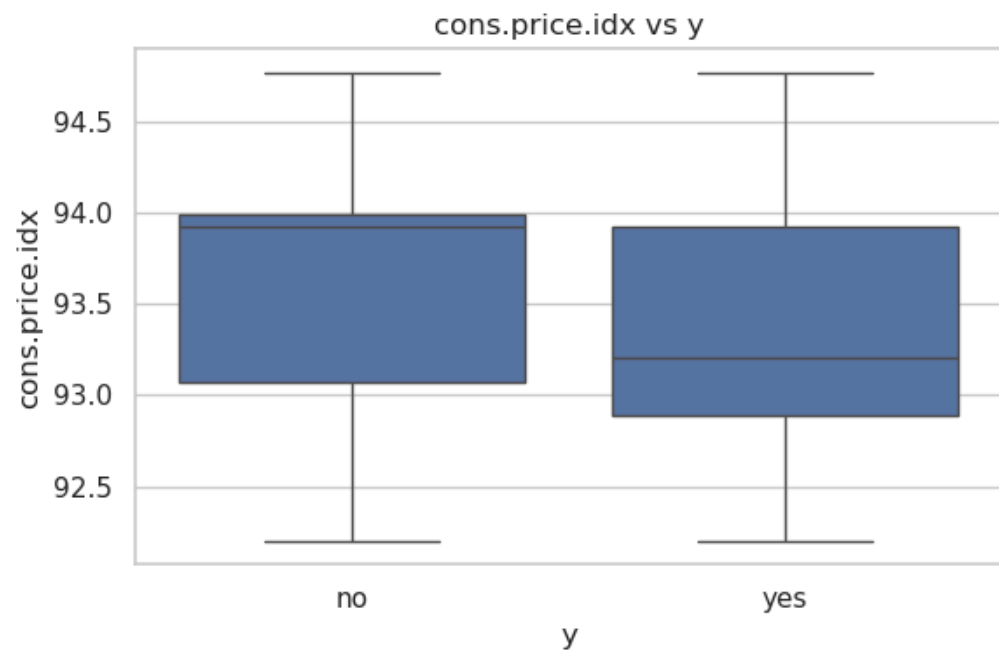
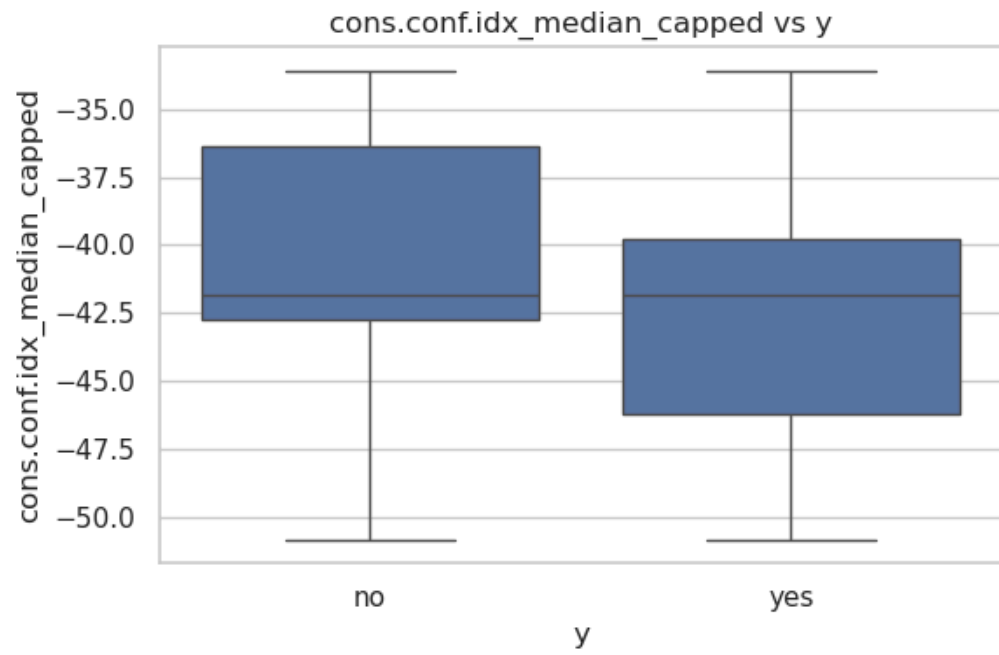
Outliers or long  
tails

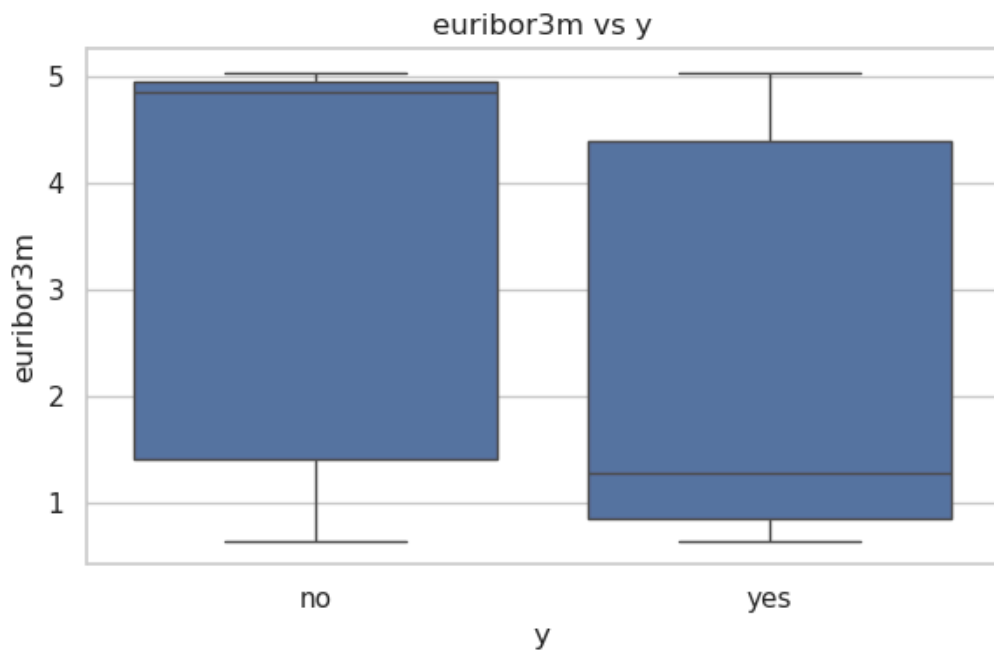
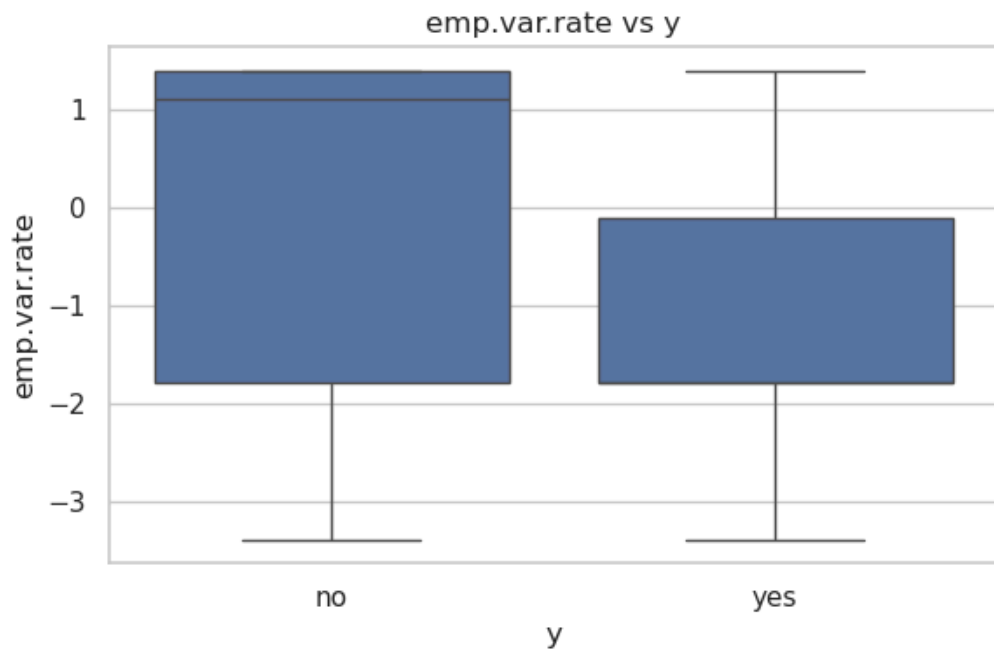
Investigate potential extreme values or skewed  
distributions

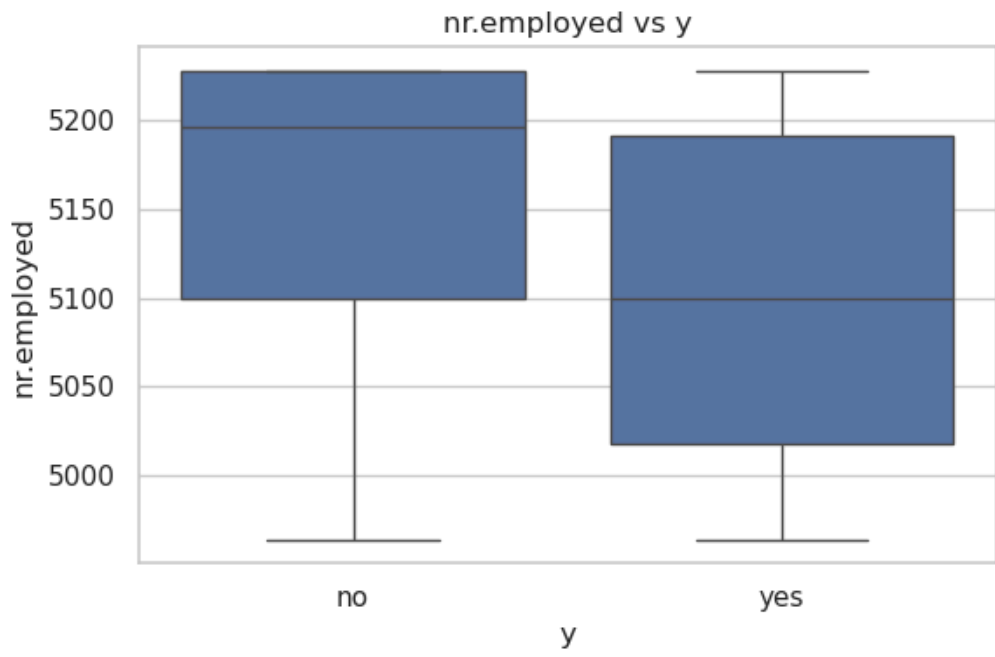
Wider spread in  
one class

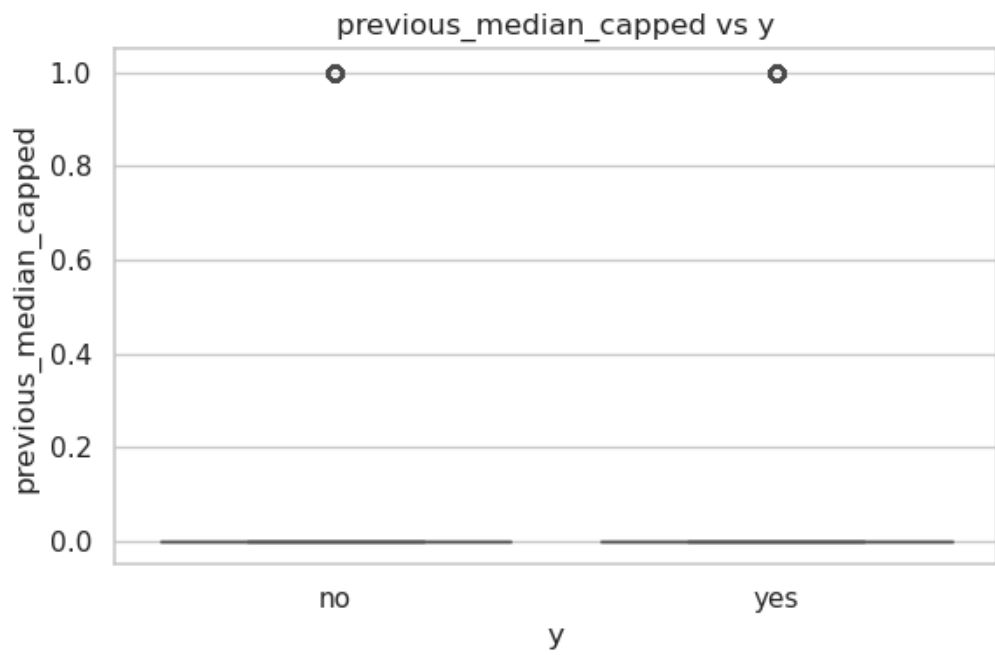
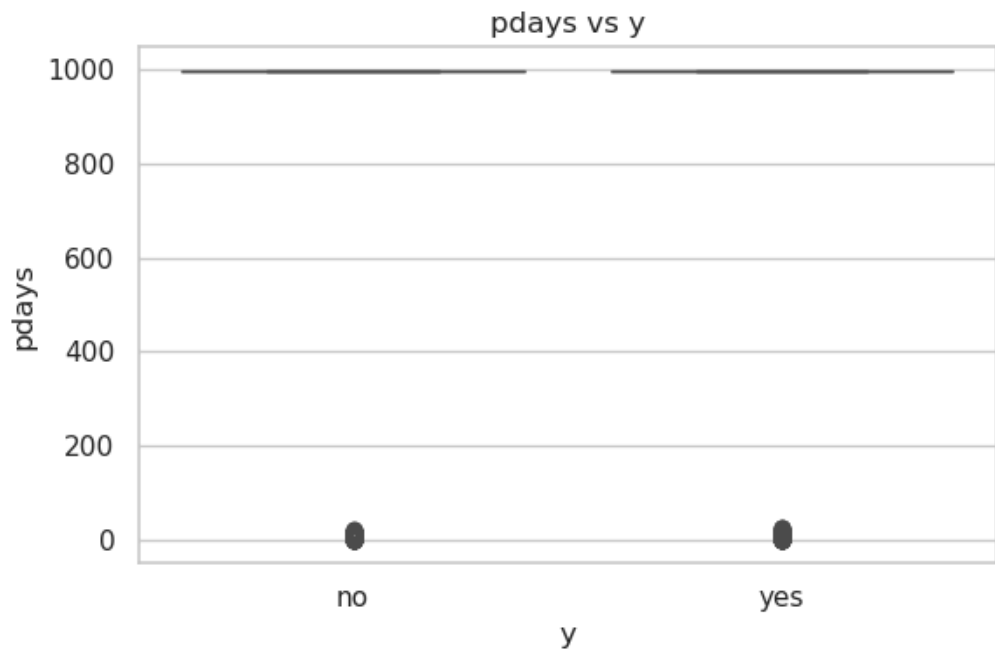
Could suggest more variability in that class (e.g.  
behavior varies for buyers)

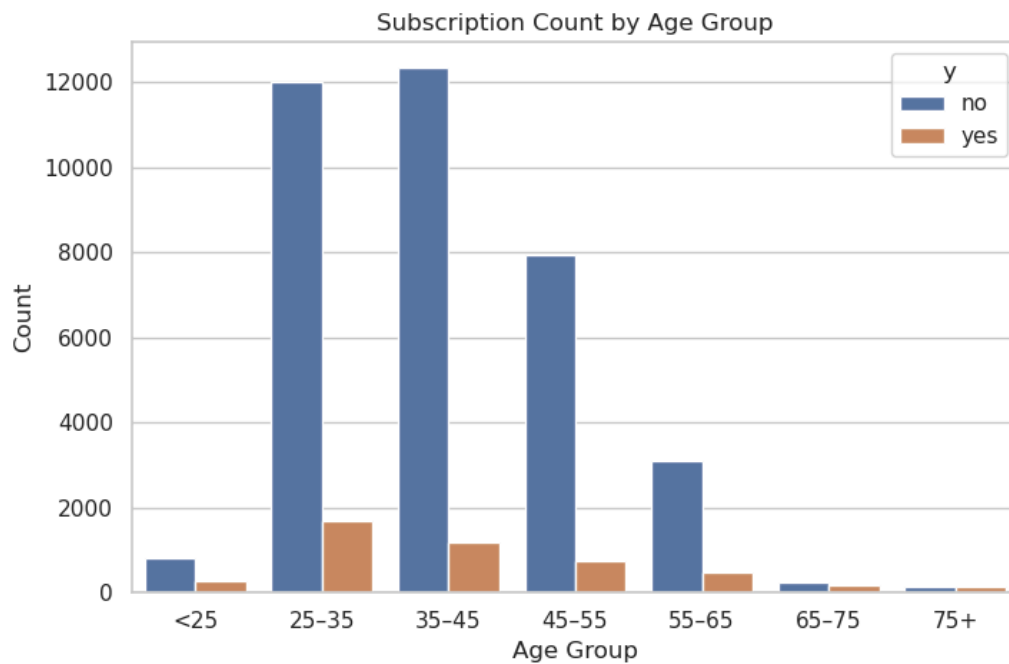












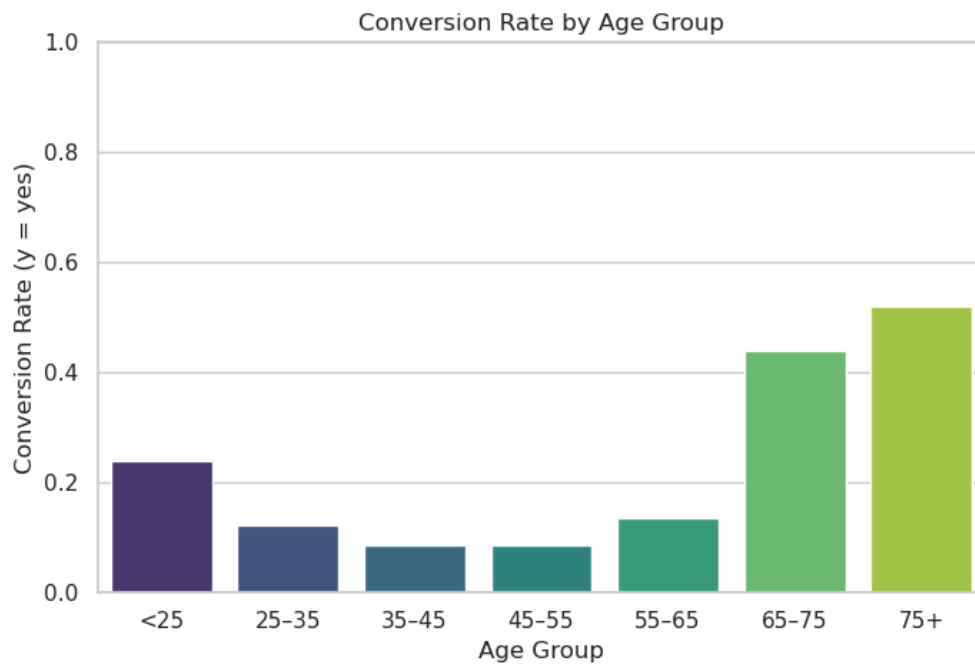
```
group_counts = df.groupby(['age_group', 'y']).size().unstack().fillna(0)
```

```
group_counts['count'] = group_counts['yes'] + group_counts['no']
```

```
group_counts['conversion_rate'] = group_counts['yes'] / group_counts['count']
```

conversion\_rate: It tells you which age groups are **more likely to Customer says yes to subscribing to the bank's term deposit offer**. → helps focus marketing efforts where the probability is higher.





#### 4. Github Link :

[https://github.com/priyanjalipatel/Data\\_Glacier\\_Final\\_Project/blob/main/Notebook\\_CLEAN\\_Tranformation.ipynb](https://github.com/priyanjalipatel/Data_Glacier_Final_Project/blob/main/Notebook_CLEAN_Tranformation.ipynb)