LOAN DEFAULT RISK ANALYSIS

IDENTIFYING RISK APPLICATIONS USING EDA

INTRODUCTION

- This analysis focuses on understanding loan default risks using Exploratory Data Analysis (EDA). The goal is to identify patterns and variables that indicate risky loan applications. The insights can help in making informed decisions to minimize financial losses.

BUSINESS CONTEXT

- The company specializes in providing loans to urban customers. Loan default leads to significant financial losses. Key objectives include:

- 1. Reducing credit loss by identifying risky applicants.

- 2. Enhancing risk assessment and portfolio management.

- 3. Making data-driven decisions to mitigate risks.

DATA OVERVIEW

- The dataset contains information on past loan applicants, including:

- - Loan Amount

- - Interest Rates

- - Loan Status (Fully Paid, Current, Charged-Off)

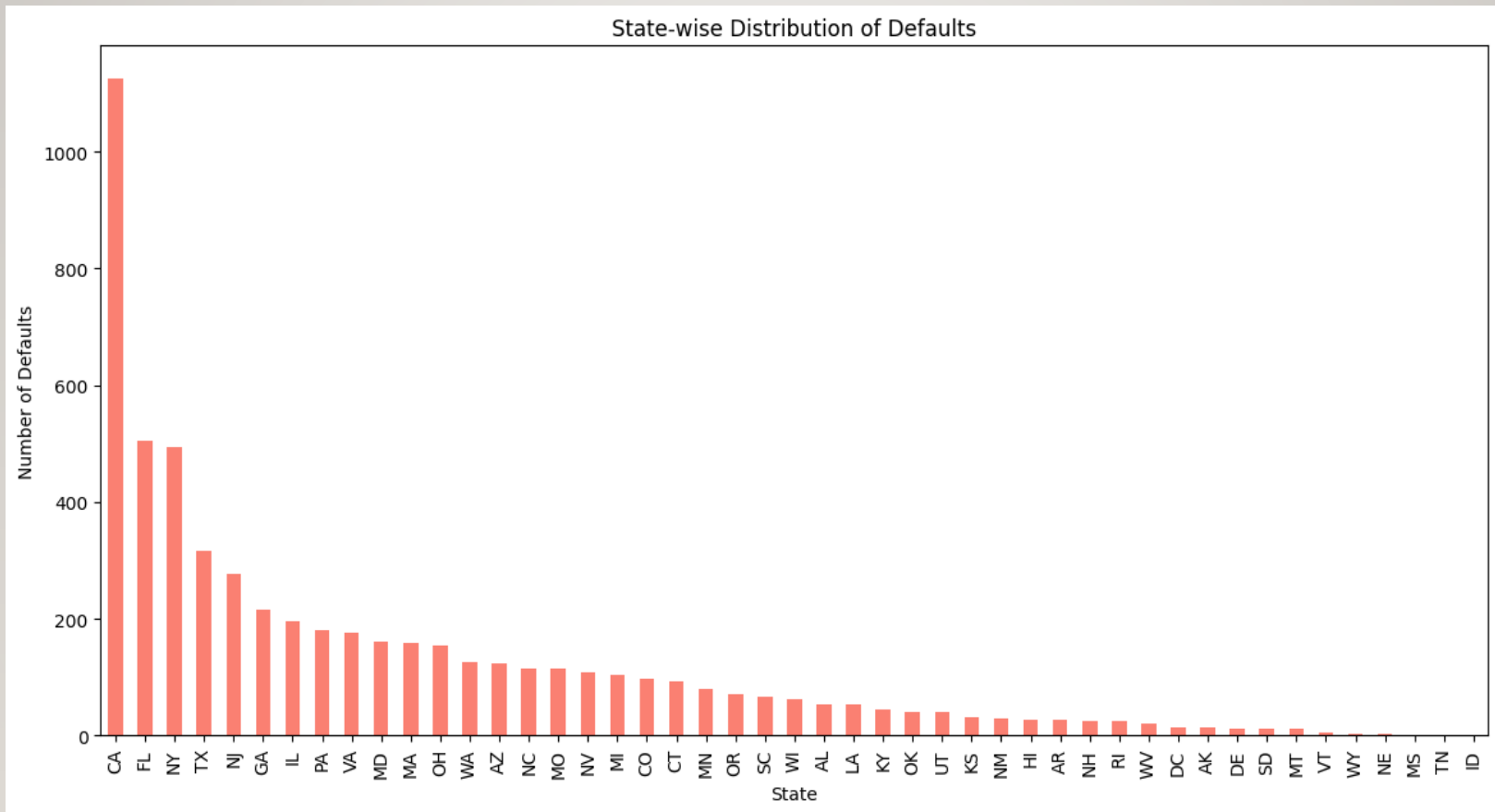- Objective: Understand how consumer and loan attributes influence defaults.

VISUAL ANALYSIS: LOAN DISTRIBUTION

Distribution of Loan Amounts
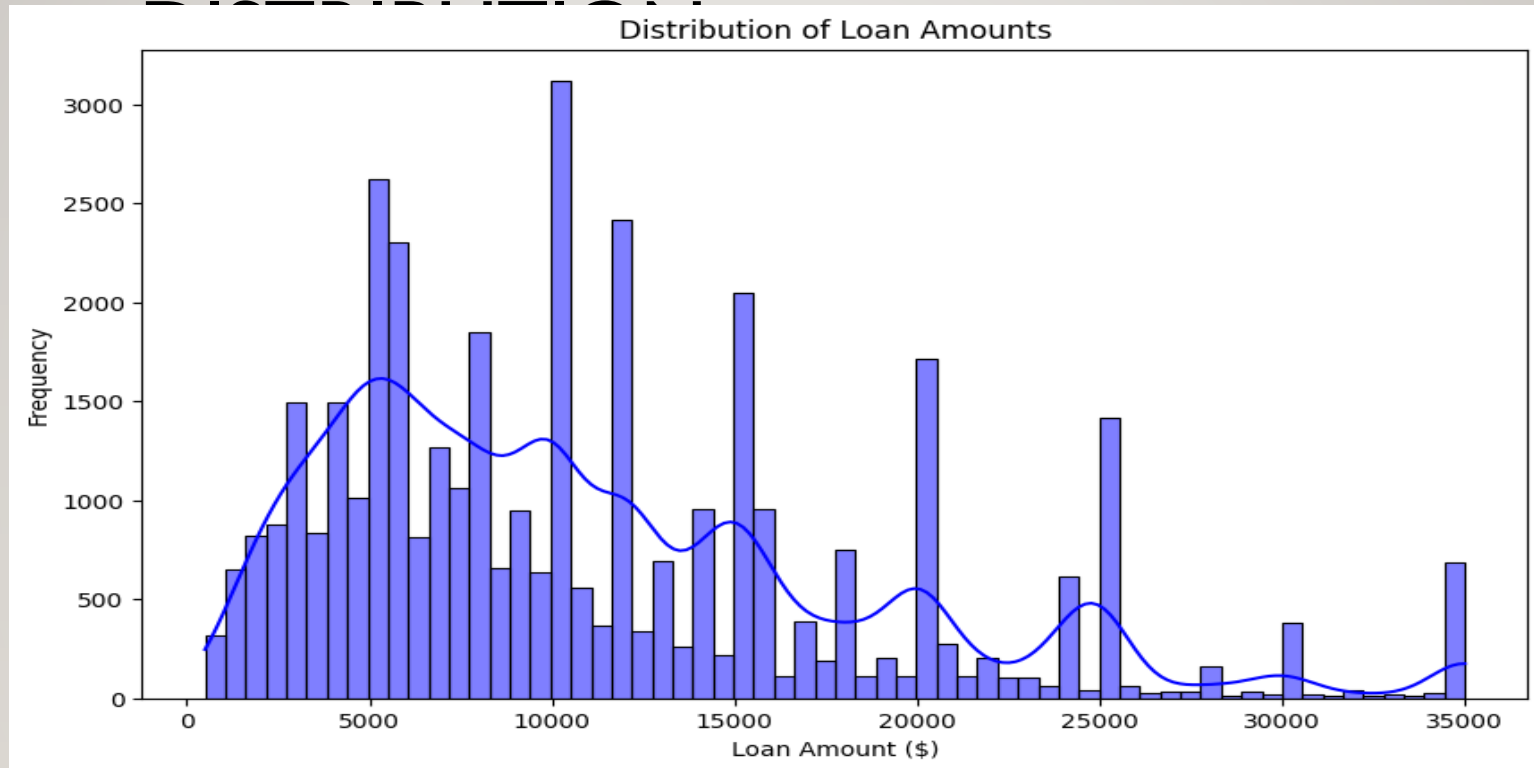
VISUAL ANALYSIS: LOAN AMOUNT VS INTEREST RATE

VISUAL ANALYSIS: STATE-WISE DISTRIBUTION

State-wise Distribution of Defaults

LOAN DEFAULT RISK ANALYSIS TABLE

Category	Key Insights	Recommendations
Loan Amount Distribution	Loan amounts range from $0 to $35,000, with the highest frequency around $10,000.	Focus on understanding customer profiles in the $10,000 range for better approval decisions.
Interest Rate vs Loan Status	Higher interest rates correlate with a higher likelihood of "Charged Off" status (defaults).	Implement stricter credit checks for high-interest-rate loans or adjust rates based on risk profiles.
Fully Paid Loans	Loans with lower interest rates are more likely to be fully paid.	Encourage lower-risk applicants to opt for loans with favorable interest rates.
Current Loans	Loans in progress are distributed across various loan amounts and interest rates.	Monitor current loans for early signs of repayment issues.
Charged-Off Loans	Charged-off loans primarily occur at higher interest rates and loan amounts above $15,000.	Reduce approvals for high-risk categories or introduce higher collateral requirements.
Risk Indicators	Key drivers of default include higher interest rates, larger loan amounts, and possibly poor credit history.	Design a scoring model to combine multiple risk indicators for better risk predictions.

KEY INSIGHTS

- 1. Loan amounts tend to cluster at specific values, influencing repayment likelihood.

- 2. Higher interest rates correlate with a higher probability of defaults.

- 3. 'Charged-Off' loans significantly contribute to credit loss.

- 4. Certain consumer profiles exhibit higher risk tendencies.

RECOMMENDATIONS

- 1. Implement stricter screening for high-risk profiles based on EDA insights.

- 2. Adjust interest rates dynamically for riskier applicants.

- 3. Focus on improving recovery mechanisms for 'Charged-Off' loans.

- 4. Use predictive modeling to automate risk assessment.

CONCLUSION

- EDA provides valuable insights into loan default risks.

- By identifying risk patterns and driver variables, the company can minimize credit loss and make informed lending decisions.

- Adopting data-driven strategies ensures sustainable growth and profitability.