



Lending Case Study

Ravi P & Revanth NKPS

Loan Risk Assessment Case Study

Analyzing loan risk based on applicant income and loan purpose

Loan risk assessment evaluates a borrower's likelihood of repaying a loan by analyzing factors like credit history and financial stability. It helps lenders minimize potential losses and set appropriate loan terms. Modern tools like AI and data analytics enhance the precision of this process.

Assess the risk associated with different loan applications based on income levels and loan purposes

The case study aims to help understand which combinations of income levels and loan purposes have higher or lower risk.

A close-up photograph of a person's hand and arm, wearing a white button-down shirt. The hand is pointing towards the right side of the frame, likely interacting with a digital screen. The background is blurred, showing more of the shirt and possibly other people in a professional setting.

Introduction

Data Overview

- Dataset contains 39,717 records and 111 columns.
- Types of data: Loan details, borrower information, and loan status.
- Columns with more than 10,000 missing values were removed
- The dataset was reduced from 111 to 53 columns by removing these columns.
- Dropped columns with unique values and those not relevant to loan approval and the dataset was further reduced to 39717 rows and 28 columns.
- Loan status 'Current' was removed as it does not help in decision-making.
- Added new columns for issue year and month by splitting the issue date.

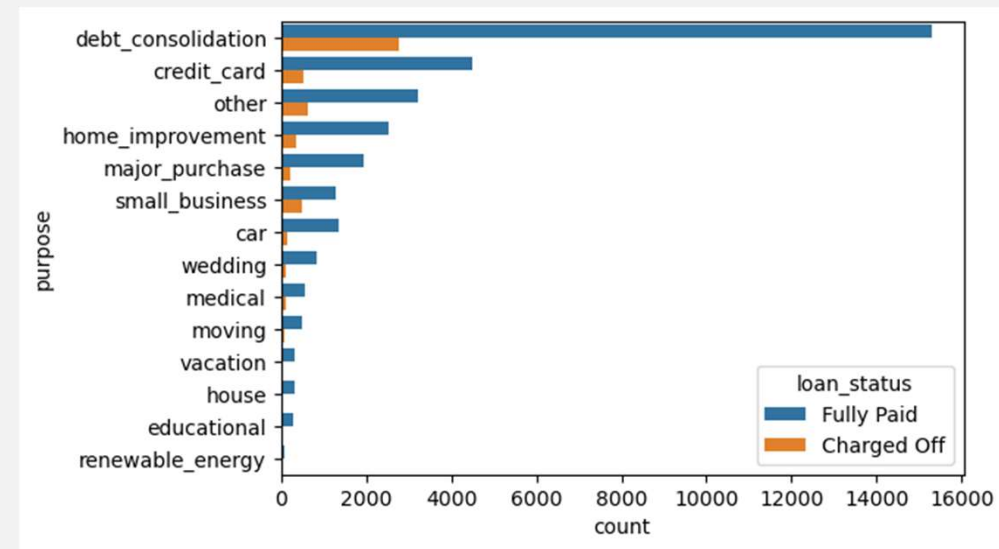
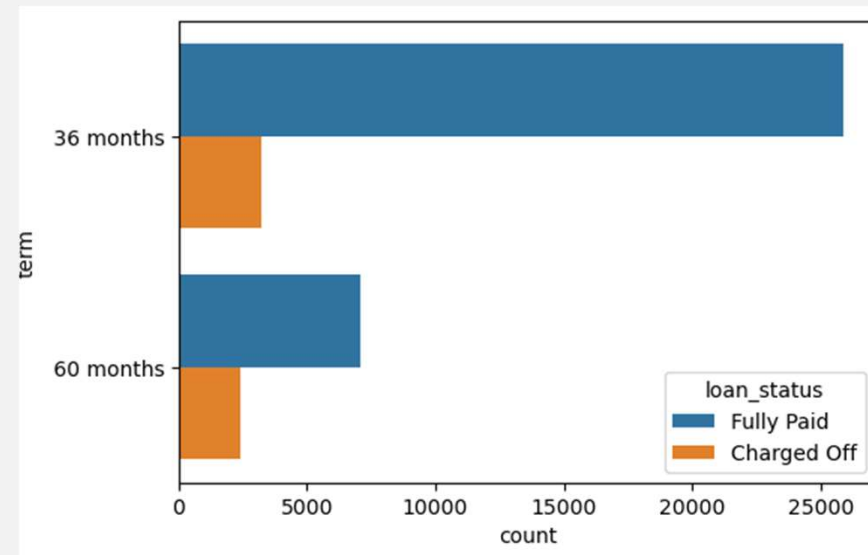
Data Analysis

- The analysis aims to identify the risk levels associated with different combinations of loan purpose and income:
- Medium-income applicants for small business loans are high risk.
- High-income applicants for car, credit card, major purchases, home improvement, vacation, and wedding loans are lower risk.

Key insights

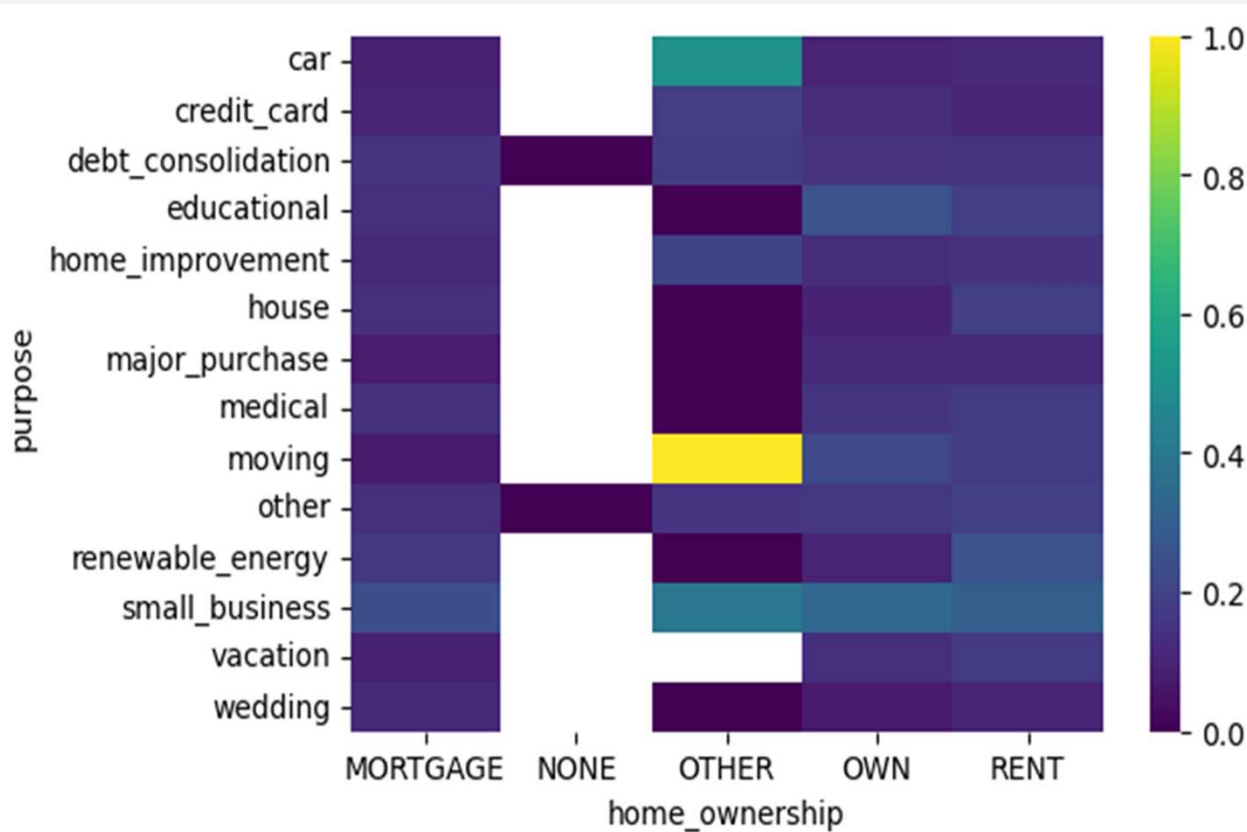
- Loans for small businesses by medium-income applicants show higher risk.
- Loans for high-income applicants for purposes like car purchase or wedding show lower risk.

Univariate Analysis



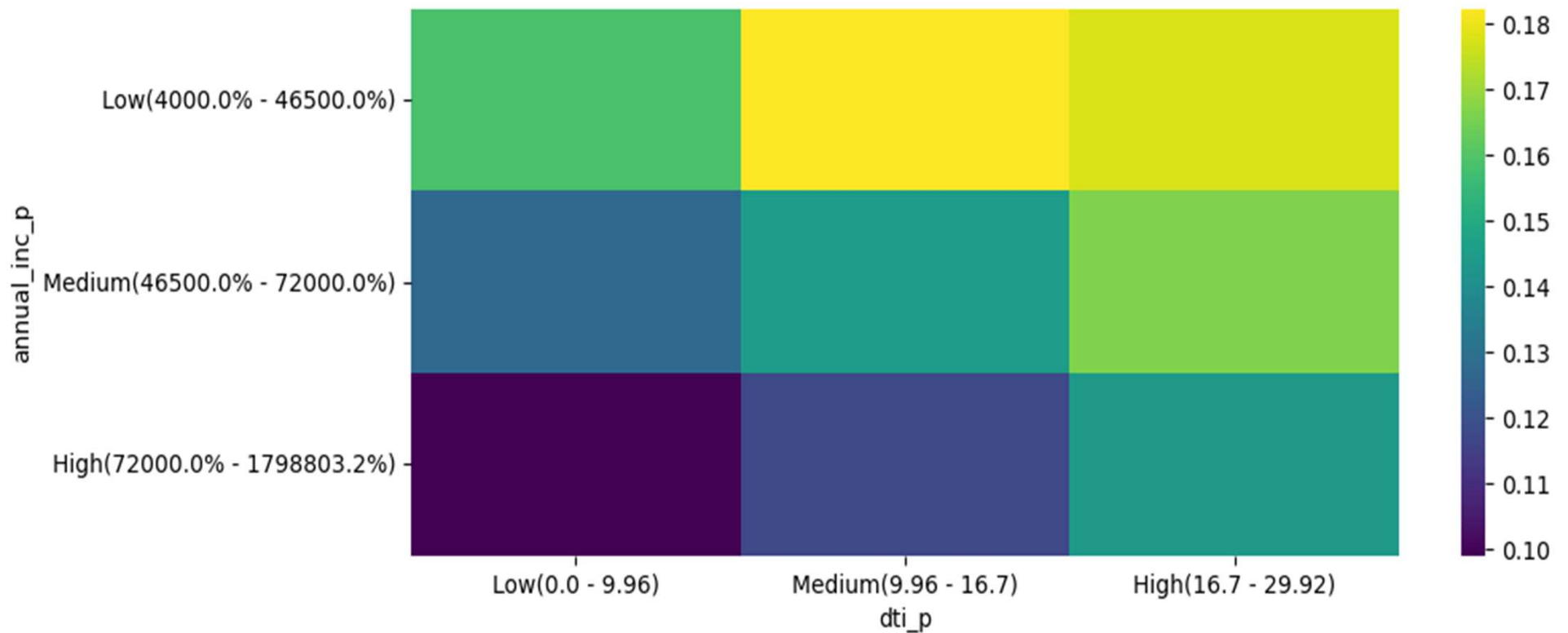
- From the bar plot graph we can conclude that the ratio of charged-off is higher if the loan tenure is of 60months.
- Approving loans to small business is turning out to be more risk.

Bi-variate Analysis

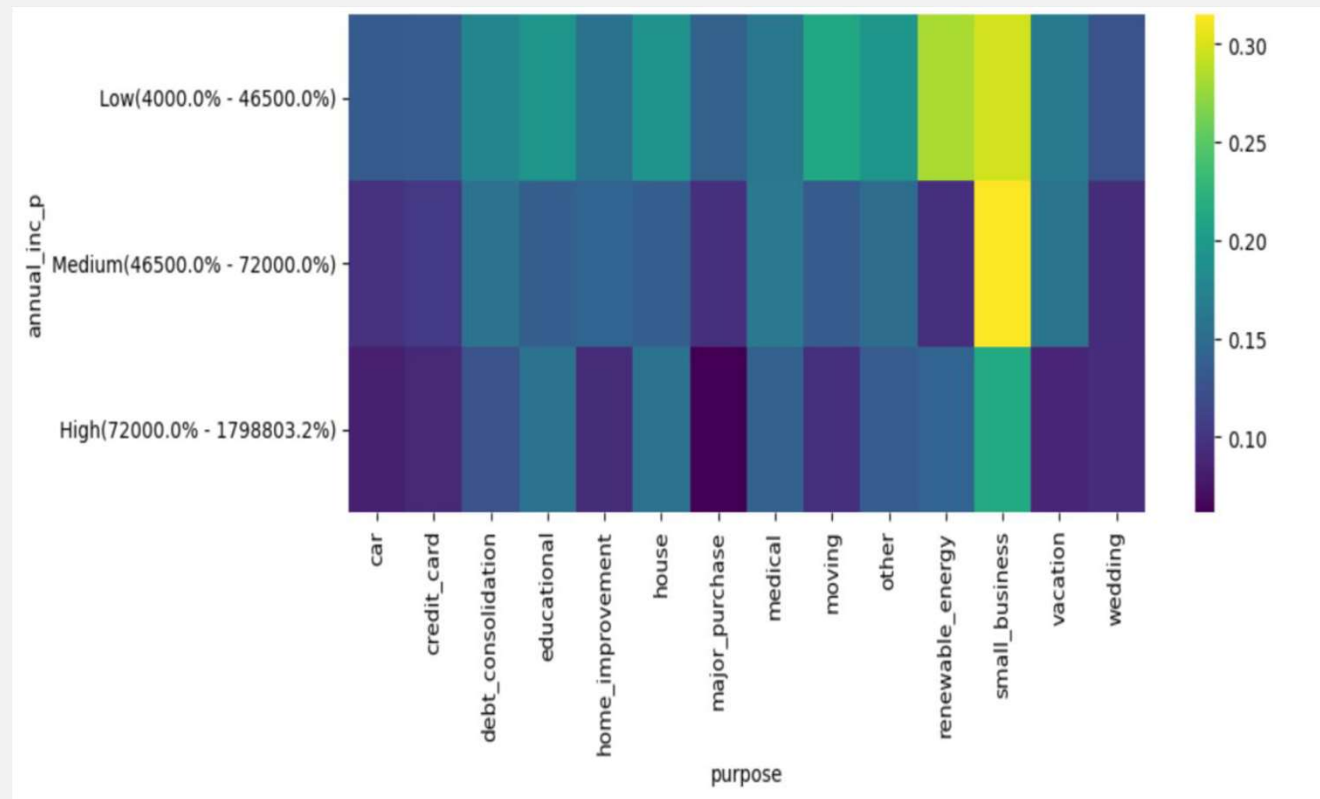


- The intersection of home ownership (None) and purpose (Other) has a darker color and represents riskier
- The intersection of home ownership (None) and purpose (debt consolidation) has the darker color representing riskier
- OTHER with small business ,moving, car purpose is riskier

Bi-variate Analysis : Medium to High debt to income vs lower the annual income risk is higher



Bi-variate Analysis



- Applicant with medium income applying loan for small business purpose is very risky.
- Applicant with high income applying loan for car, credit_card, major_purchase, home_improvement, vacation, wedding purpose less risky.

Conclusion

- The case study provides insights into loan risk management.
- The findings can help in refining loan approval processes and risk assessments.



Thank You

Ravi P



Revanth NKPS

