
Lending Club Case Study

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Objective

The goal of this case study is to apply Exploratory Data Analysis (EDA) techniques to a real-world problem. The objective is to uncover valuable insights and effectively communicate them in a business-oriented presentation format.

Advantages of the case study include:

- ❑ Providing practical insights into the application of Exploratory Data Analysis (EDA) in real-world business scenarios.
- ❑ Developing a foundational understanding of risk analytics within the banking and financial services sector.
- ❑ Demonstrating how data is leveraged to mitigate financial losses when extending loans to clients.
- ❑ Enhancing comprehension of visualization techniques, specifically identifying suitable charts for real-world data representation.

Business Understanding

The company, specializing in providing various loans to urban customers, faces a critical decision-making process upon receiving loan applications.

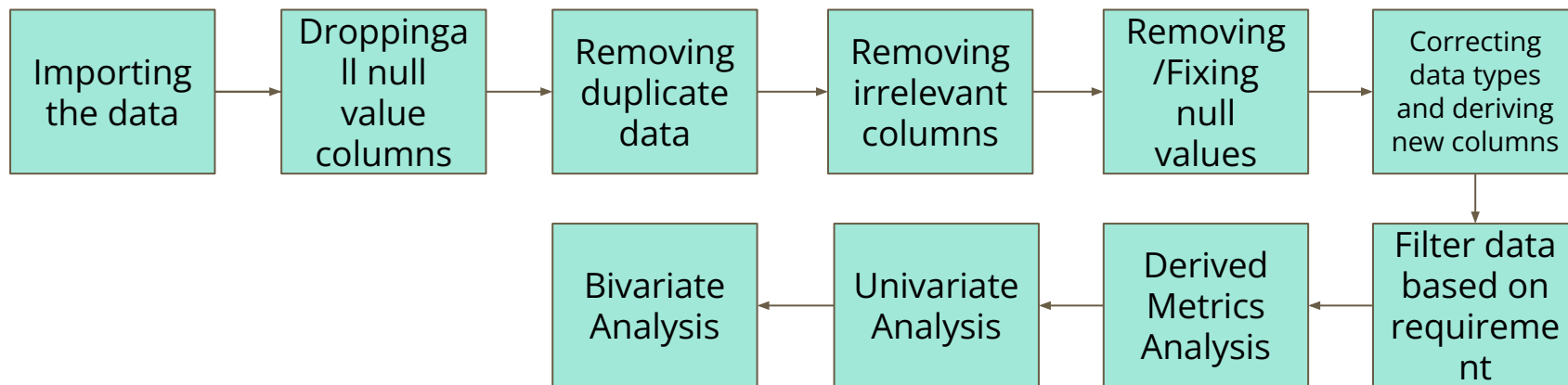
The business objective is to discover patterns that suggest whether an individual is prone to defaulting. This information can guide decisions such as rejecting the loan, adjusting loan amounts, or offering loans to high-risk applicants with increased interest rates, among other actions.

Dataset Details:

The provided data includes information about previous loan applicants and their default status. The dataset specifically includes details about approved loans, and it categorizes the loan status into three types: Fully Paid, Current, and Charged-Off. Notably, it does not contain information about rejected loan applications.

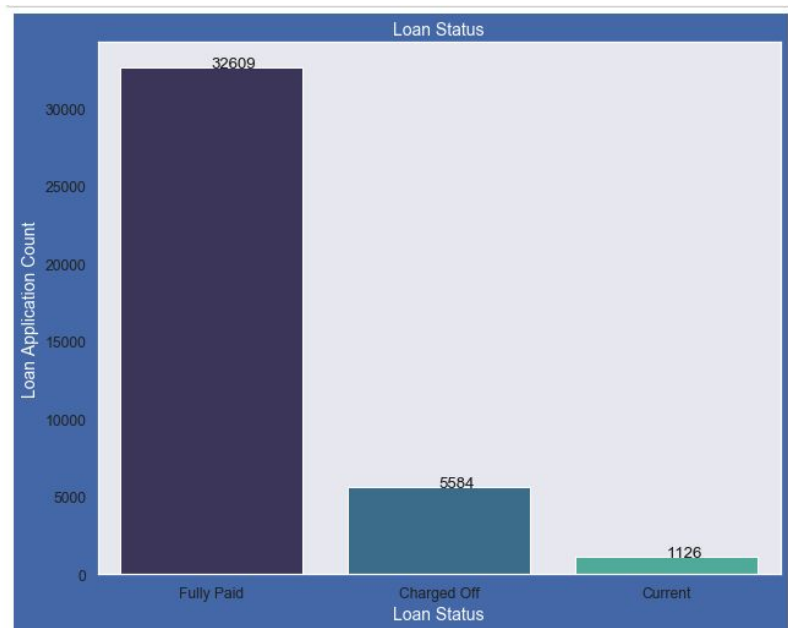
Business Understanding

Data Clean-up and Preparation process:



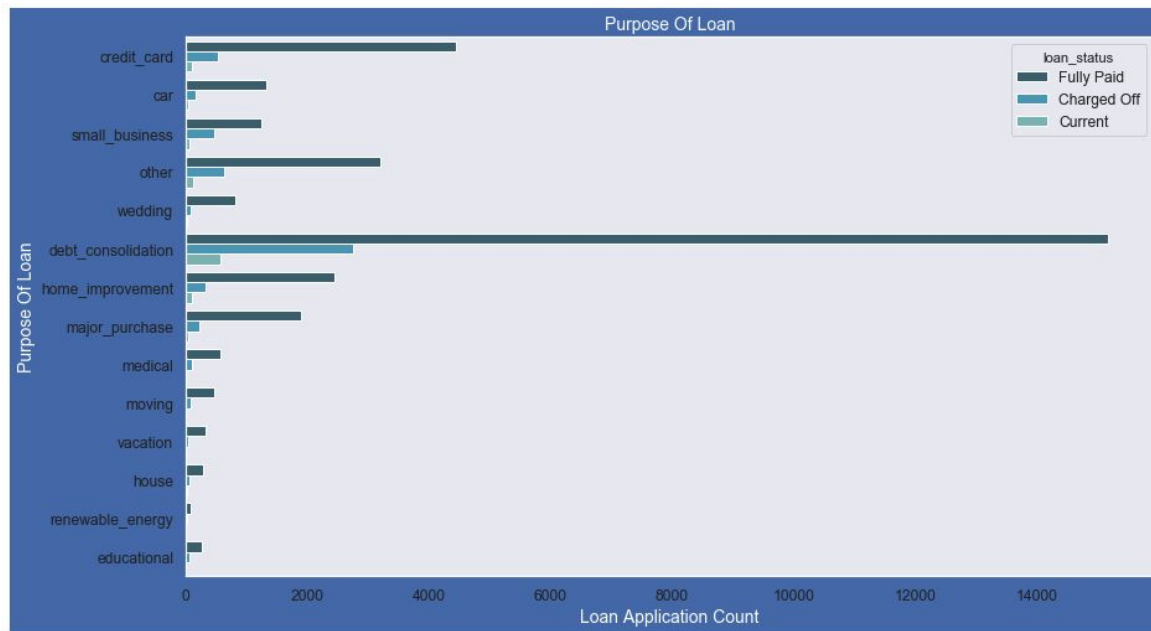
Loan Status

Loan Status: The number of charged off loan is close to 14% loans out of total loan issued.



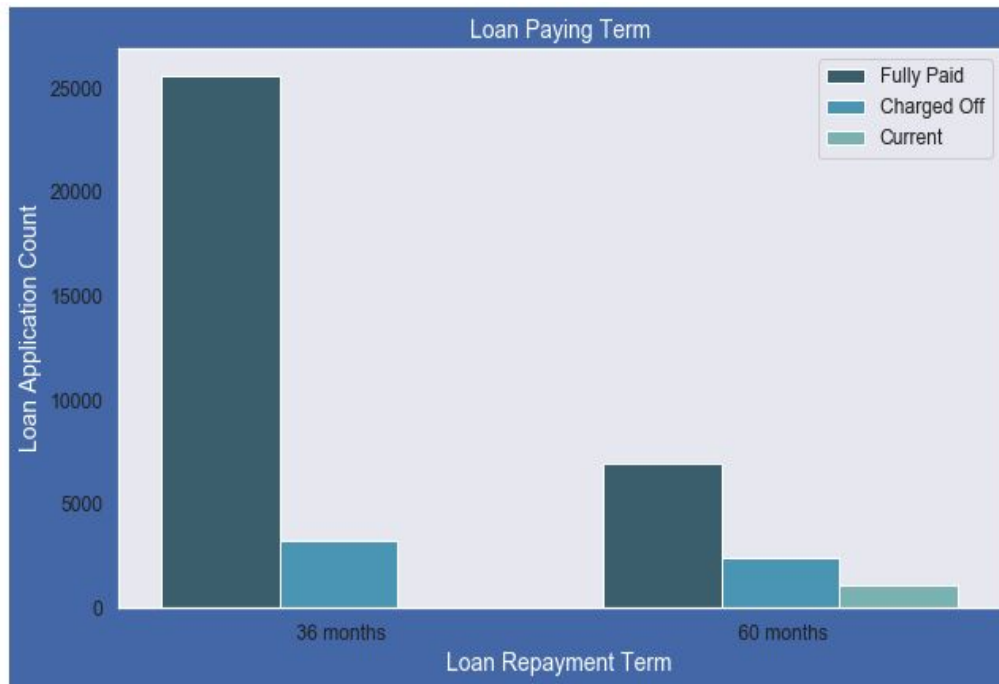
Purpose of Loan and Loan Status

- Most of the loans were taken for the purpose of debt consolidation & paying credit card bill.
- The number of charged off count is also high for these loans.



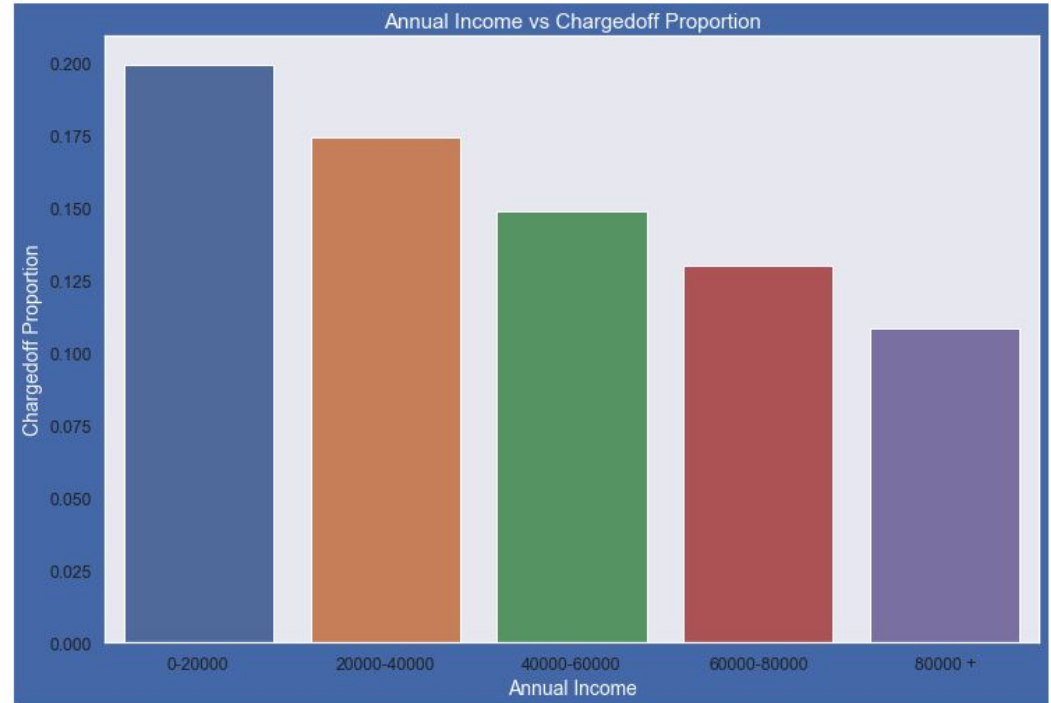
Loan Repayment Term

Loan Term: Those who had taken loan to repay in 60 months had more % of number of applicants getting charged off as compared to applicants who had taken loan for 36 months.



Annual Income vs Charged Off Proportion

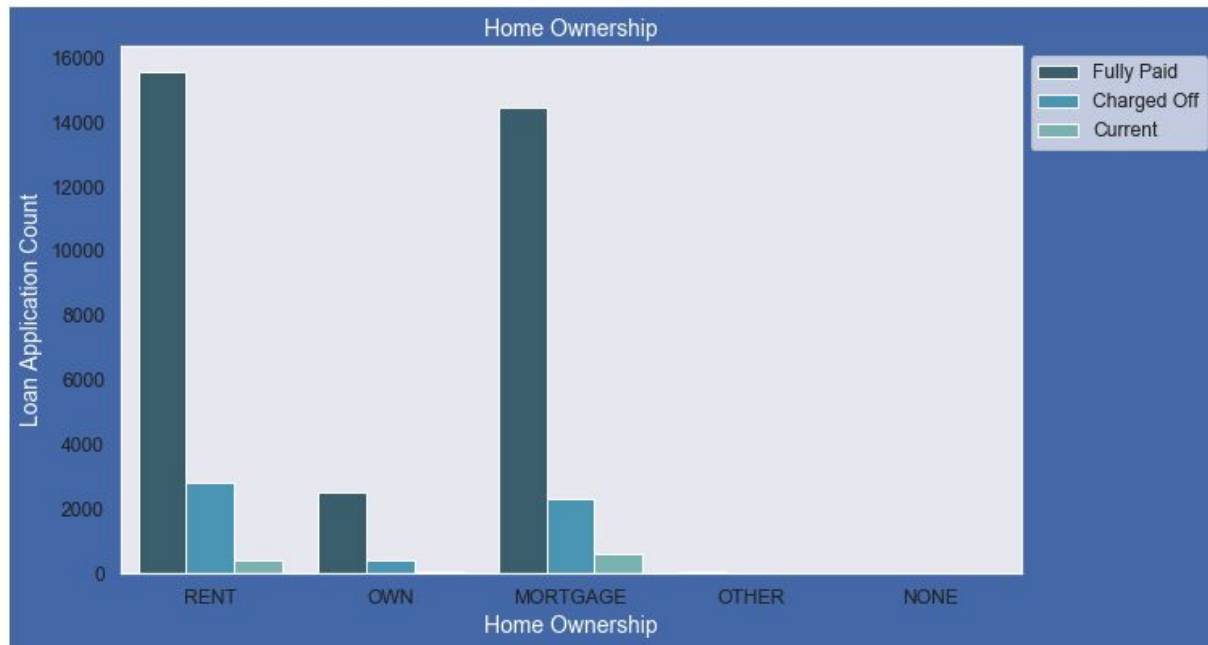
- ❑ Income range 80000+ has less chances of charged off.
- ❑ Income range 0 - 20000 has high chances of charged off.
- ❑ We can notice that with increase in annual income charged off proportion got decreased.



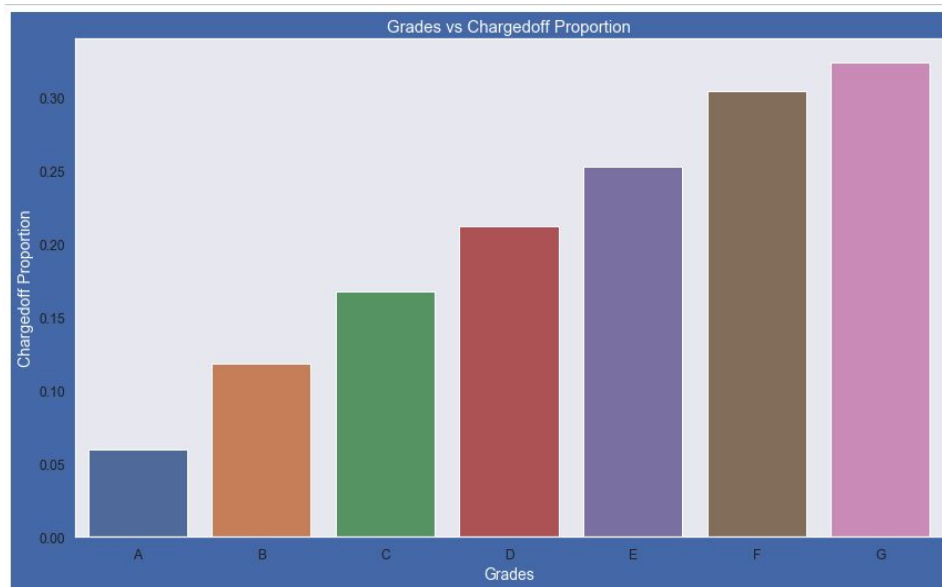
Home Ownership

Home Ownership:

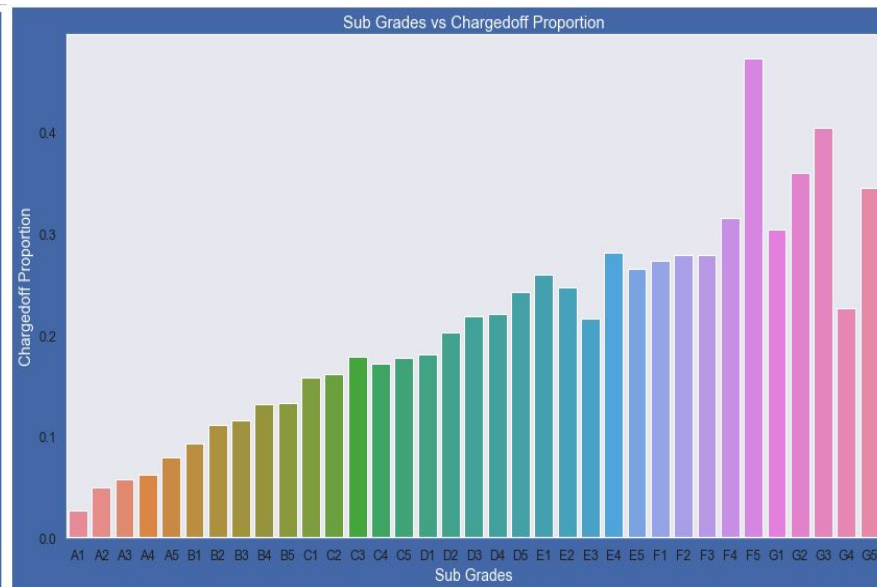
Majority of clients are lacking ownership of any property and are on rent or mortgage and have a higher chance of defaulting.



Grade and Sub-Grade



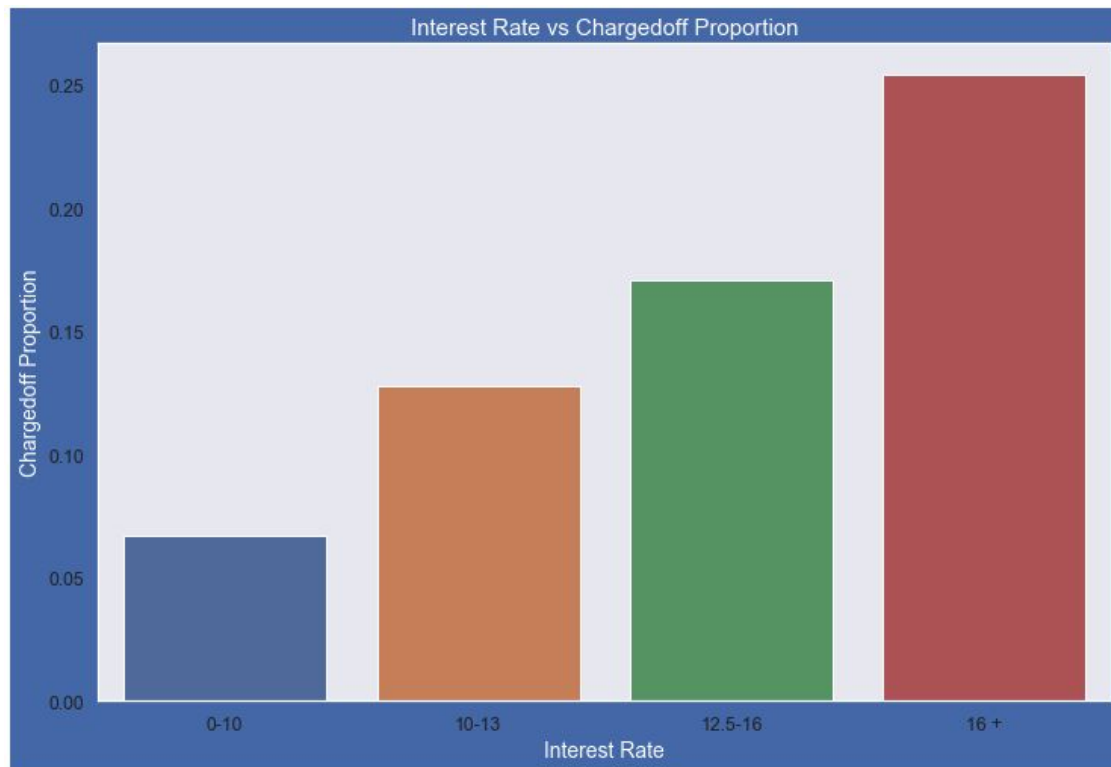
Grade: Chances of charged off is increasing with grade moving from "A" towards "G"



Sub Grade: Proportion of charged off is increasing with sub grades moving from sub grades of "A" towards sub grades of "G"

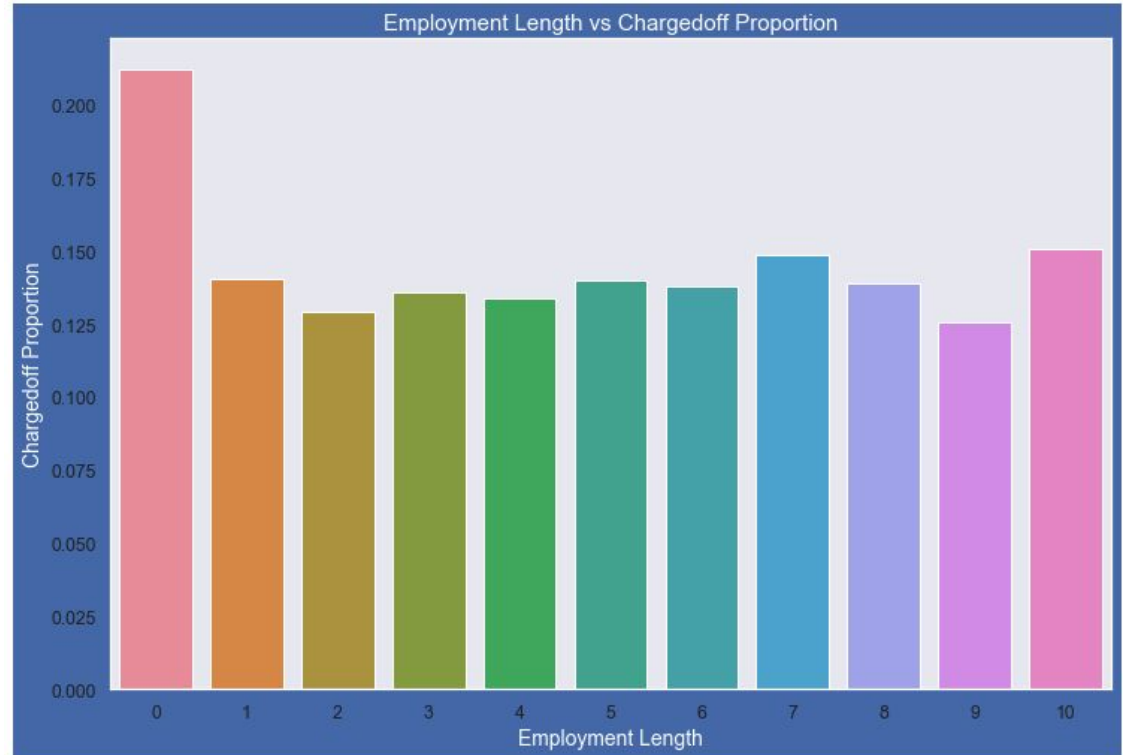
Interest Rate vs Charged Off Proportion

- ❑ Interest rate of less than 10% has very less chances of charged off.
- ❑ Interest rate of more than 16% has good chances of charged off as compared to other category interest rates.
- ❑ Charged off proportion is increasing with higher interest rates.



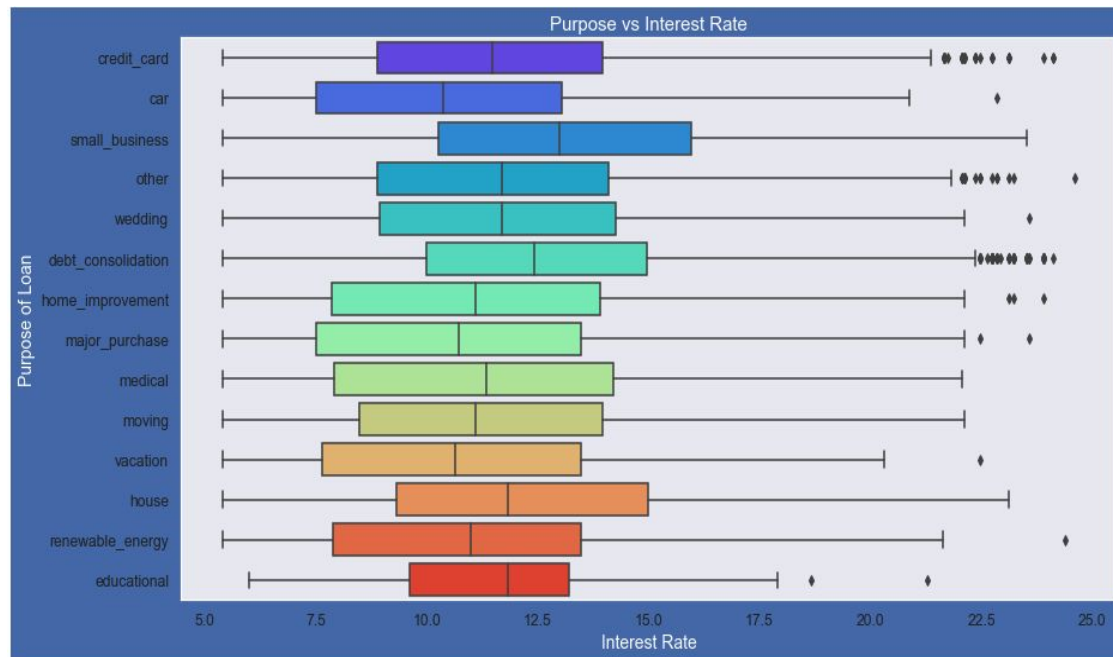
Employment Length vs Charged Off Proportion

- ❑ Those who are not working or have less than 1 year of work experience have high chances of getting charged off.
- ❑ It makes sense as with less or no experience they don't have source of income to repay loan.
- ❑ Rest of the applicants have more or less same chances of getting charged off.



Bivariate Analysis - Purpose vs Interest Rate

- ❑ The pattern is evident: as the loan amount increases, so does the interest rate.
- ❑ It's likely that when the loan amount is higher, it is associated with a longer loan term. As observed earlier, an extended loan term tends to correspond to a higher interest rate.



Bivariate Analysis - Grade vs Annual Income

This leads us to the conclusion that individuals experiencing a 'charged off' status generally have lower annual incomes compared to those who have fully paid, across all grades (i.e., within the same interest range).

