Lending Club Case Study

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Objective

- Identify Risky Loan Applications.
- Analyze and provide more insights about which variables are driving more loans to become default.
- Provide how these driving variables are affecting Loan status.

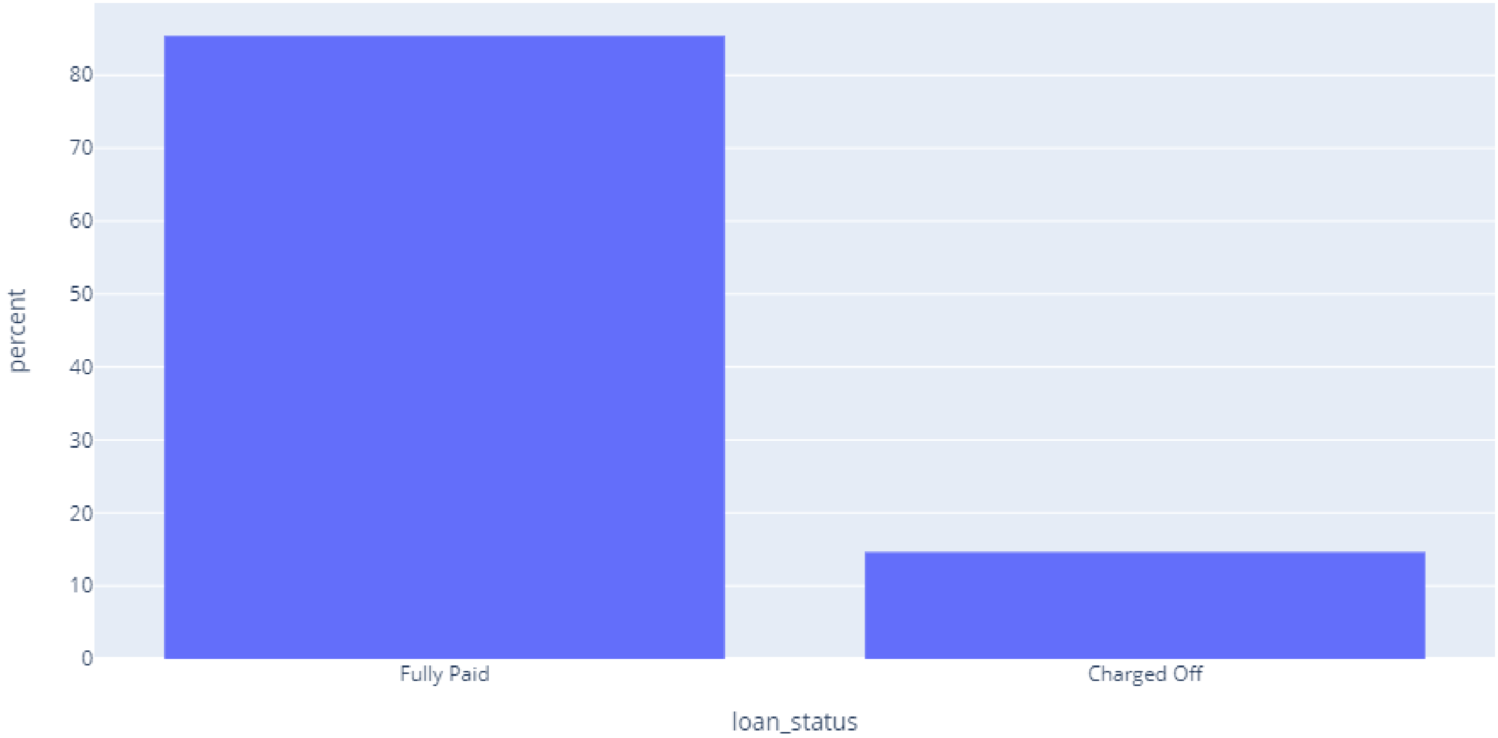
General Information

- General information about the project
  - A consumer finance company which specializes in lending various types of loans to urban customers when receives a loan application, the company has to make a decision for loan approval based on the applicant's profile
- Background of the project
  - Risk analytics in banking and financial services and understand how data is used to minimize the risk of losing money while lending to customers.
- The business problem the project is trying to solve
  - To understand the driving factors behind loan default
- The dataset that is being used
  - The complete loan data for all loans issued through the time period 2007 t0 2011

Data Analysis Approach

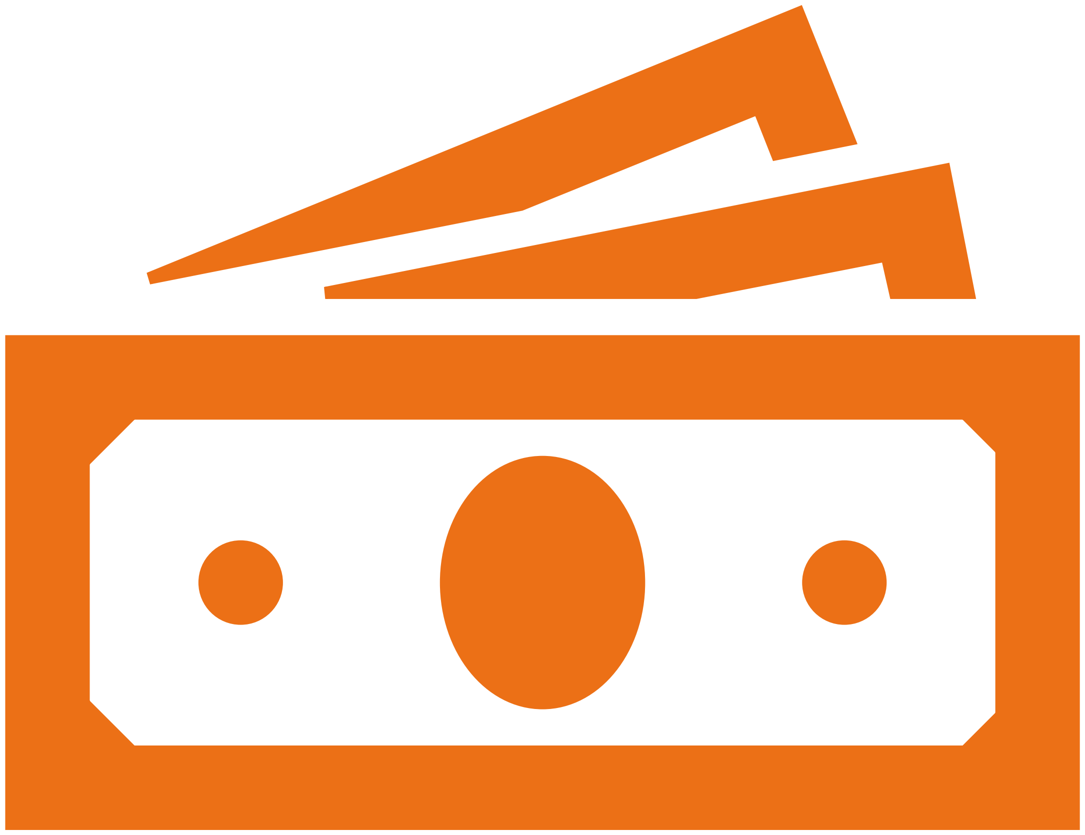
1. Data Cleaning
2. Univariate Analysis
   i. Quantitative Variables Distribution Analysis
   ii. Correlation of Quantitative Variables
   iii. Ordered Categorical Variables Analysis
   iv. Unordered Categorical Variables Analysis
   v. Derived Variables Analysis
3. Bivariate Analysis

Loan Statistics



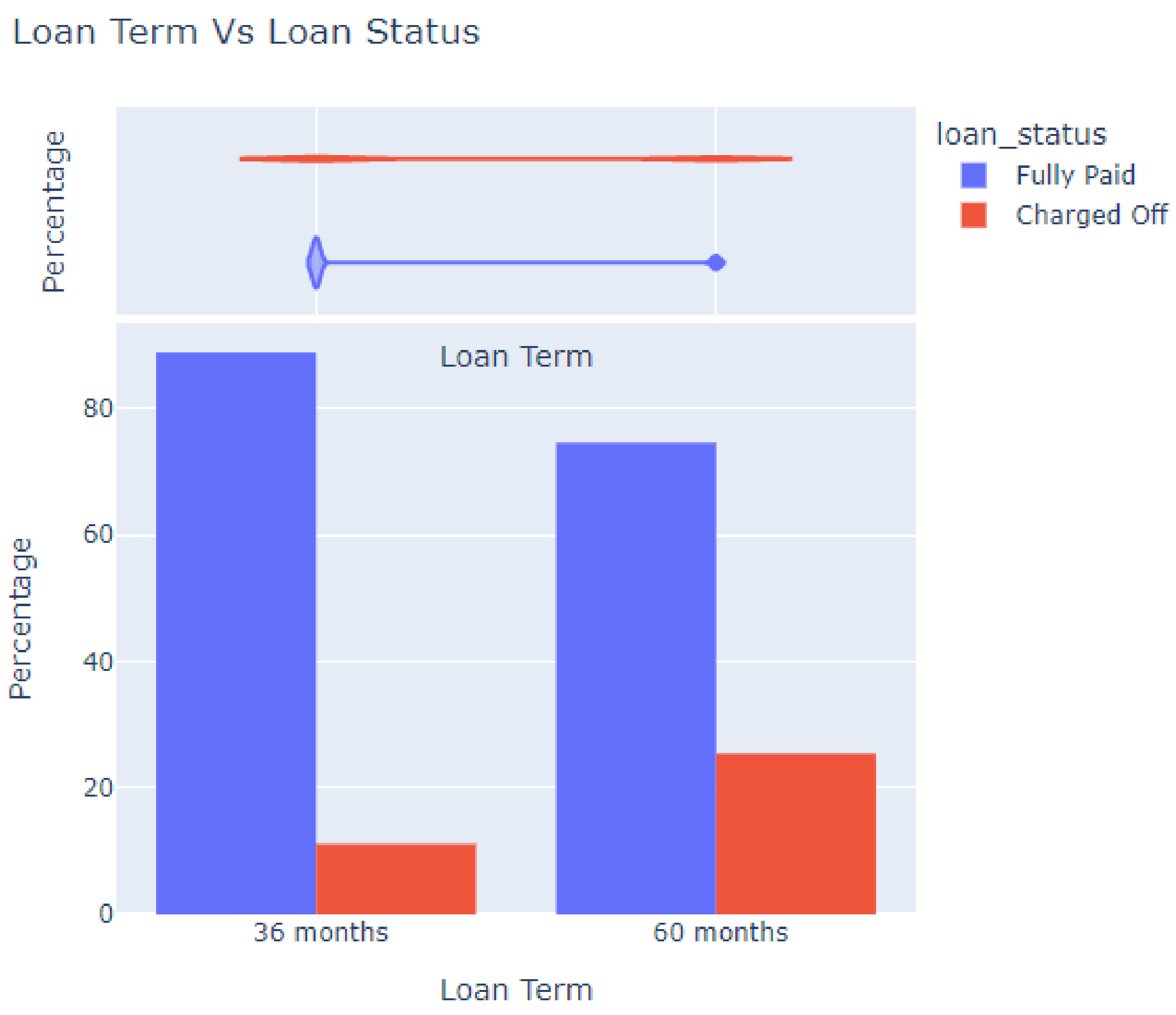
Observations
1.85.37% of Loans are Fully Paid
2.14.62% are Charged Off

Main Driving Factors for Defaulting a Loan



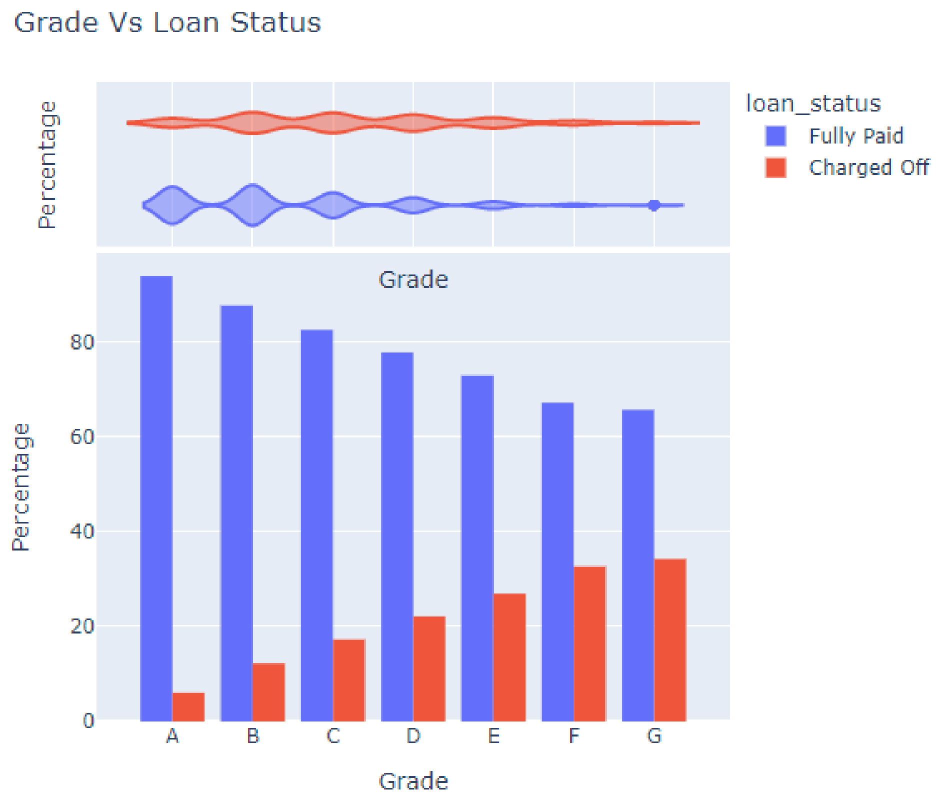
Loan Term

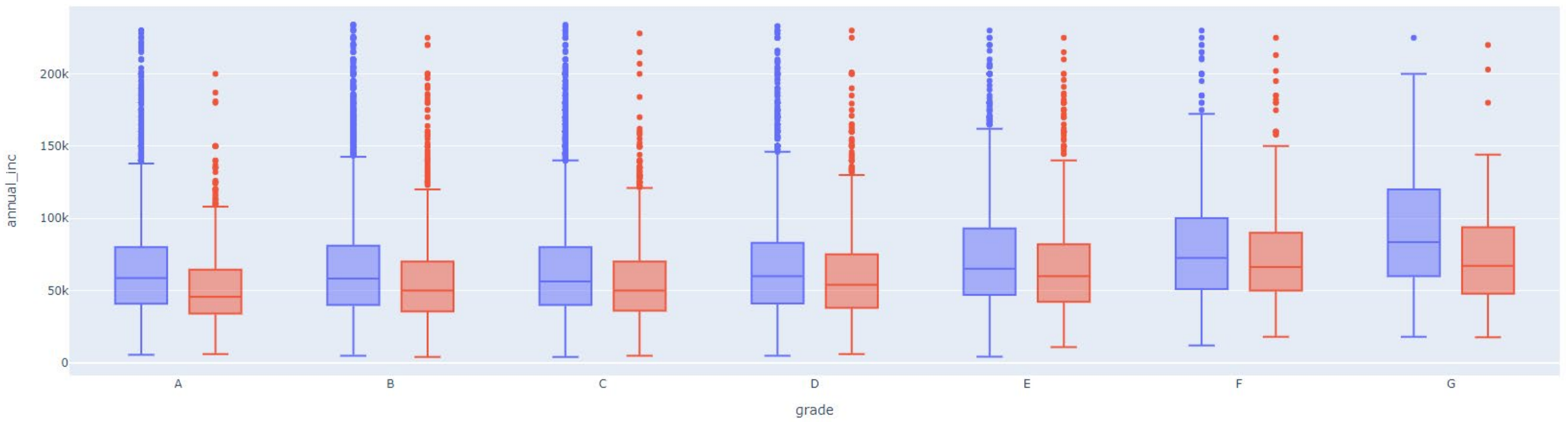
- There is high chance of defaulting a loan when loan term gets increase.



Employment Grade

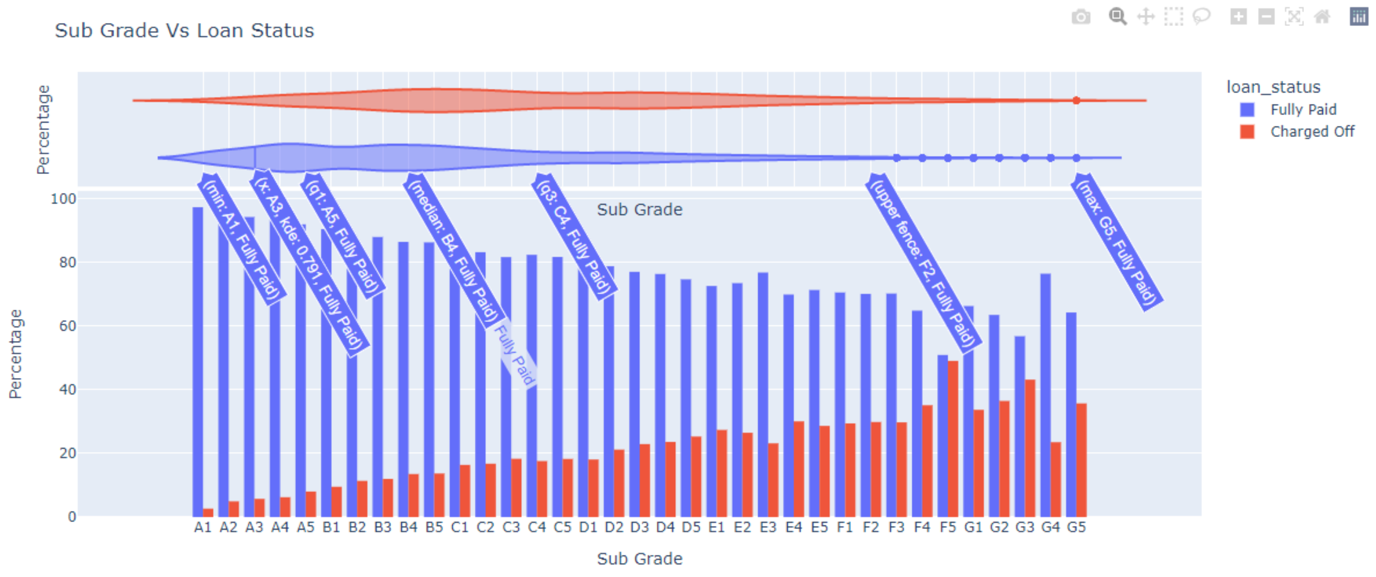
- ➢ As Grades increases from A to G, there is higher chance of Loan default.
- ➢ This is mainly due to annual income of those applicants is less at same grade compared to those who paid fully.





Employment Subgrade

- With In same Grade as sub grade goes from 1 to 5, there is high chance of defaulting a loan because of lower annual income at same subgrade level.

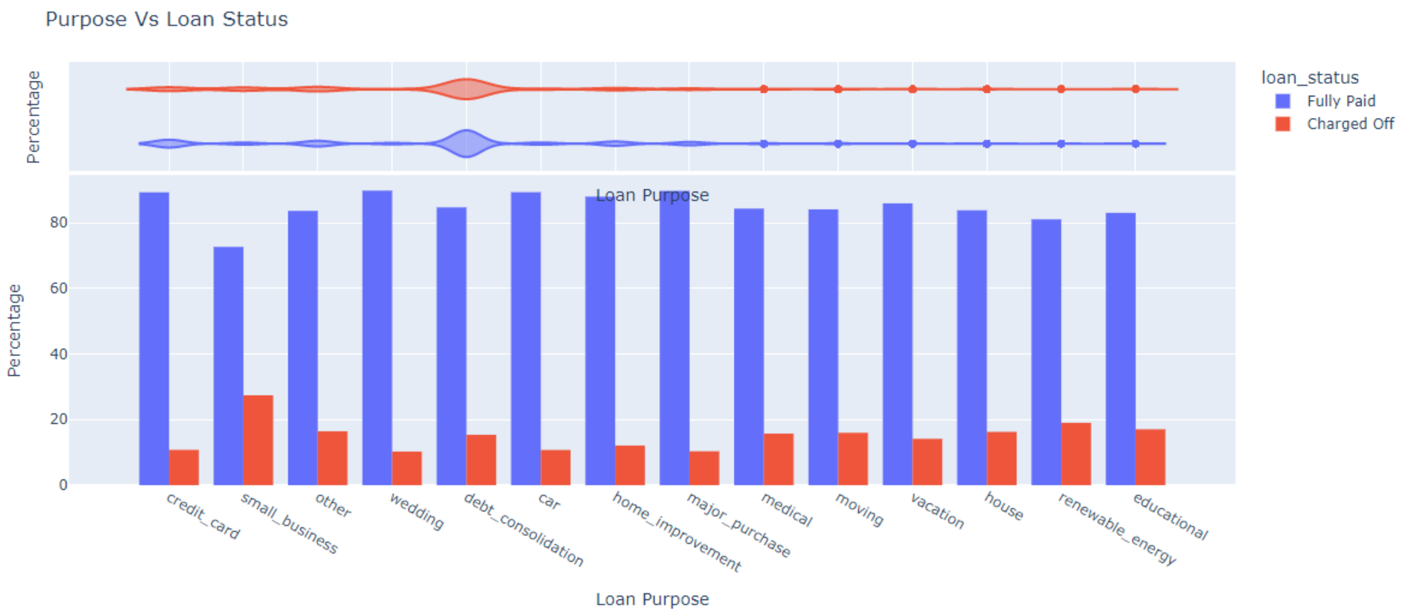


Home Ownership

- Though there is no significance difference in Charged off percentage we can see there are more loan applicants for Rent and Mortgage ones and so which contributes more loan defaults.

Loan Purpose

➢ There is high chance of loan defaulting which are taken for small business followed by renewable energy, education and debt consolidation.

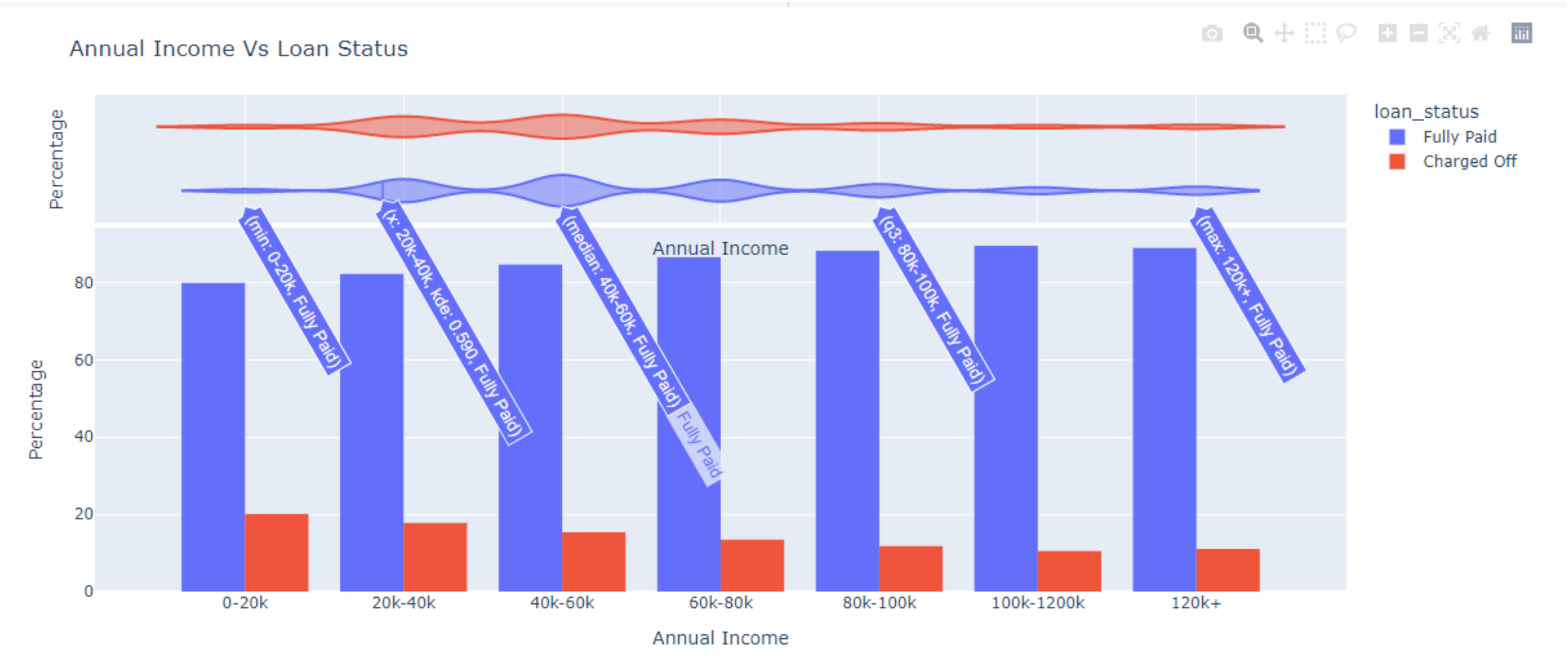


Loan Amount

- As loan amount gets increase , there is high chance of defaulting a loan.

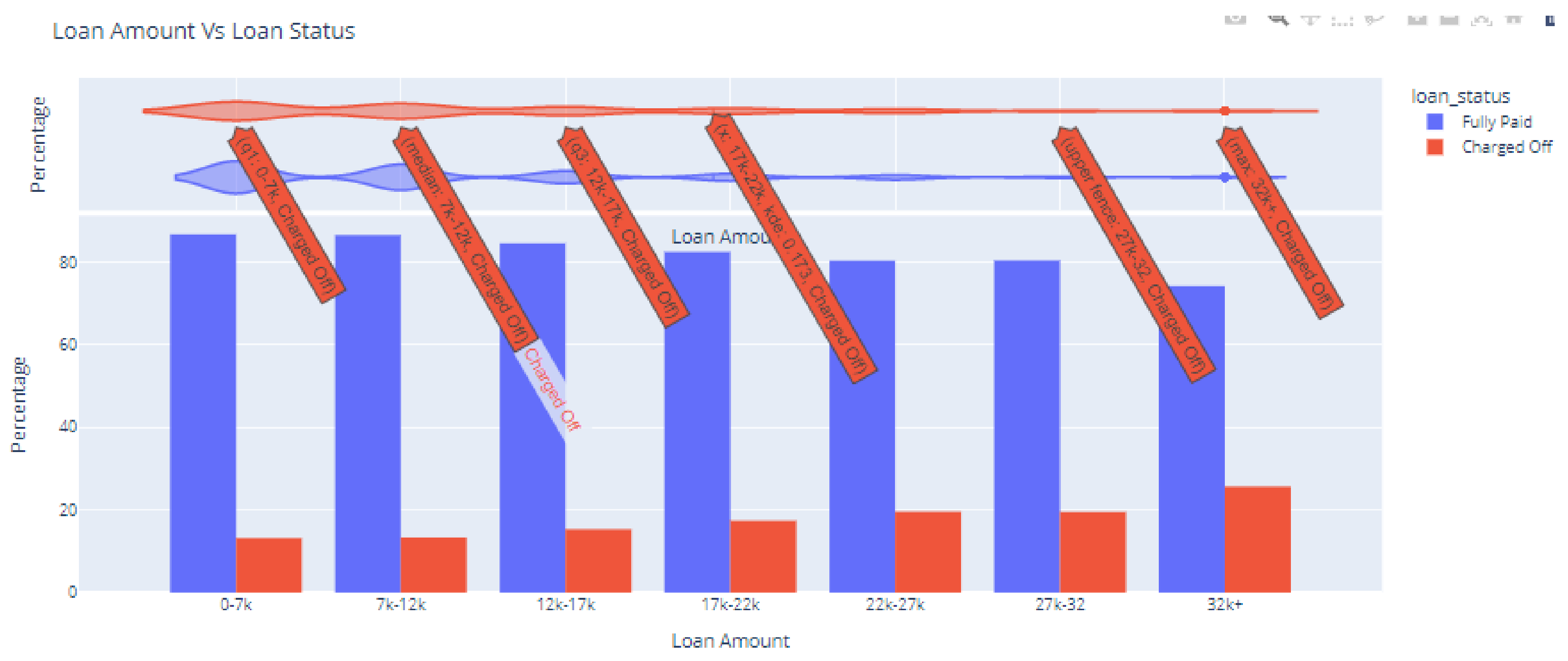
Annual Income

- Lower the Annual Income, higher the chances of loan default.



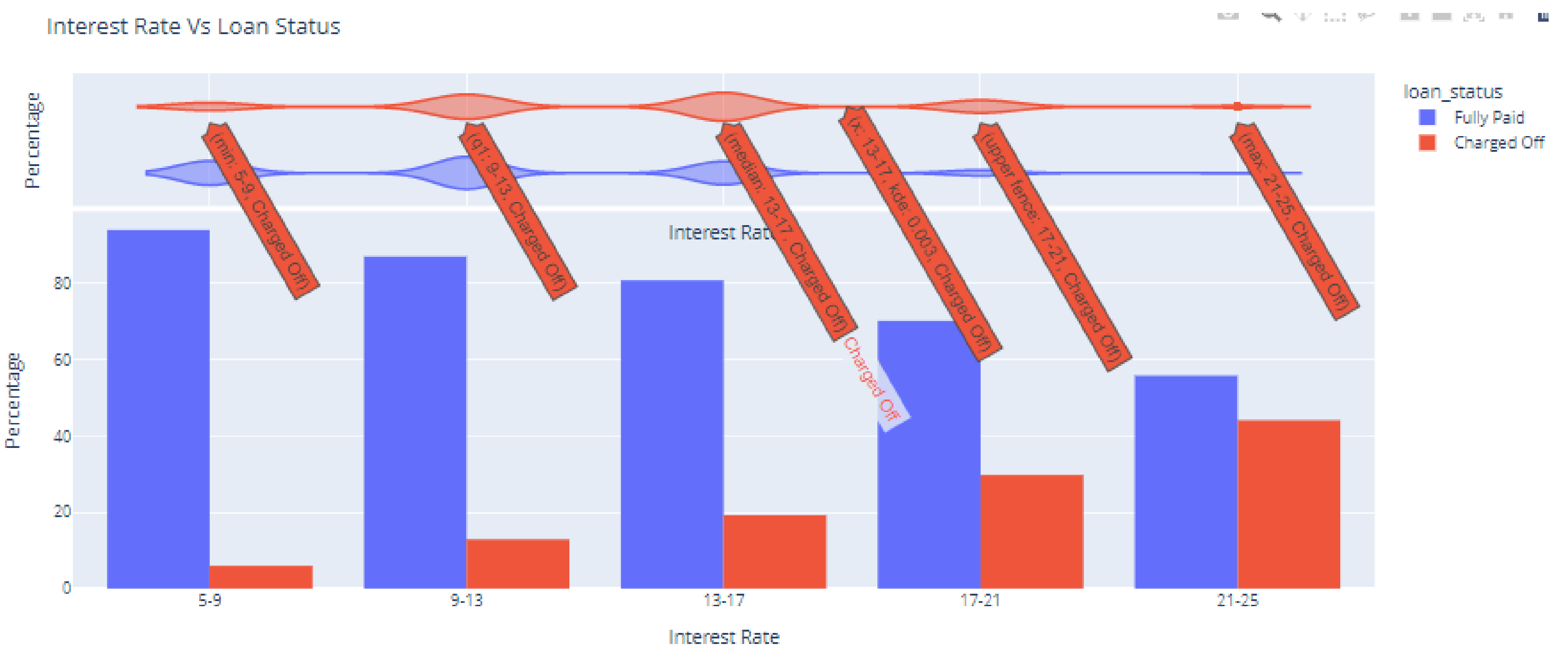
Loan Amount

- ➢ Higher the Loan Amount, higher the chances of loan default.



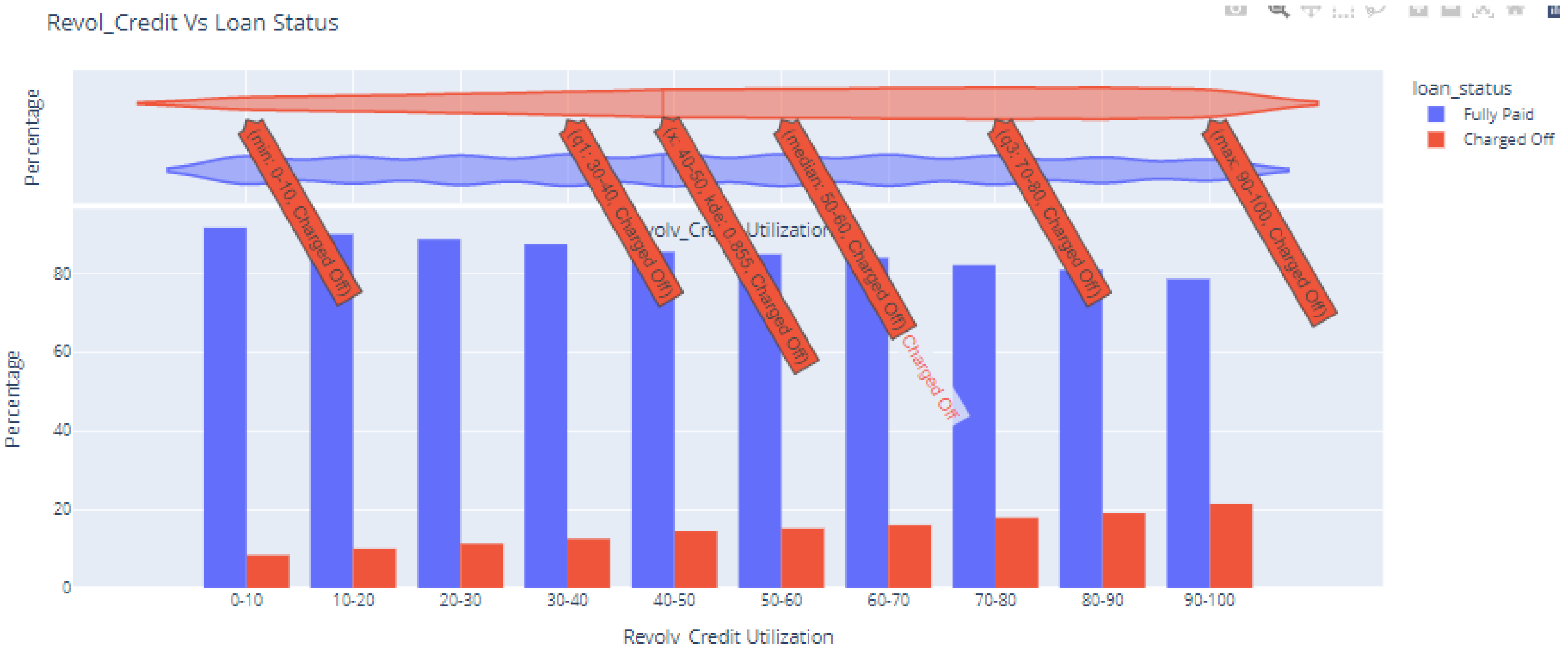
Interest Rate

- Higher the interest rates, higher the chances of loan default.



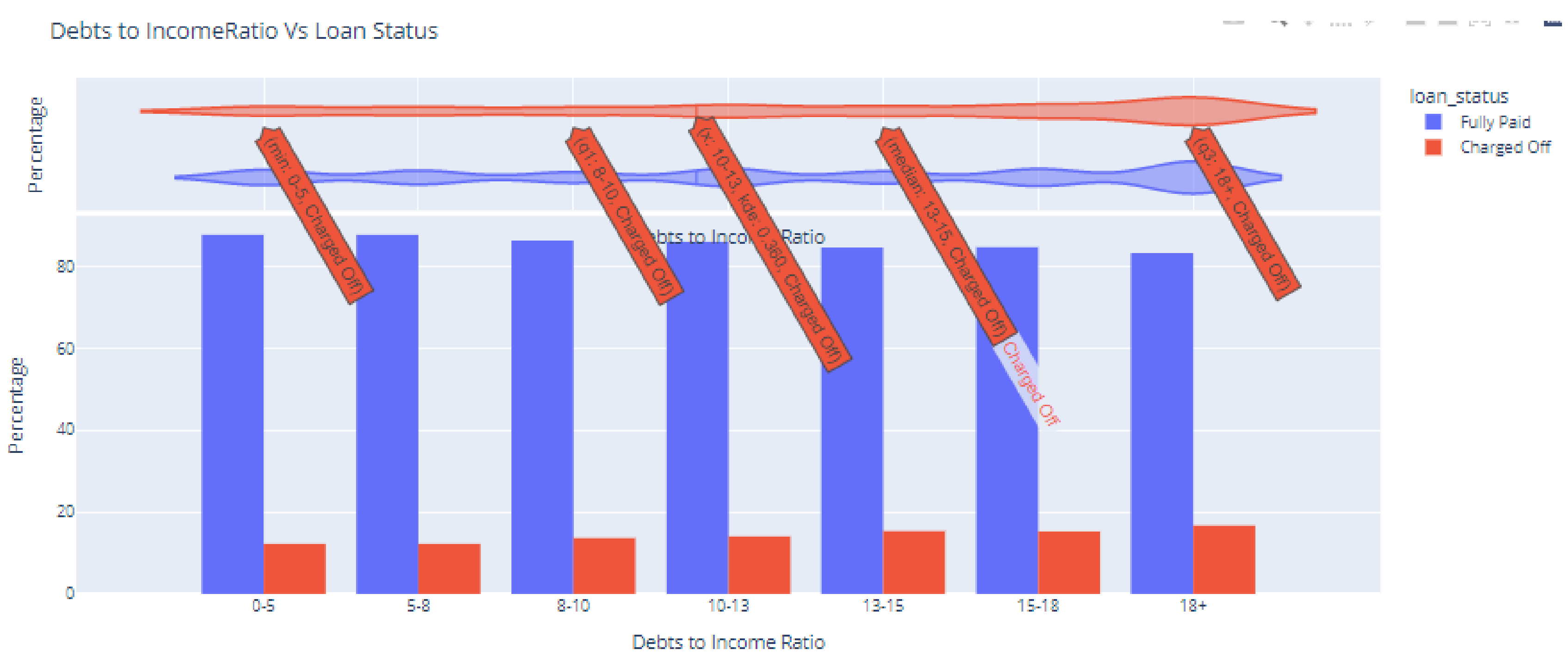
Credit Utilization

- Higher the credit utilization, higher the chances of loan default.



Debts to Income Ratio

➢ Higher the debts to income ratio, higher the chances of loan default.

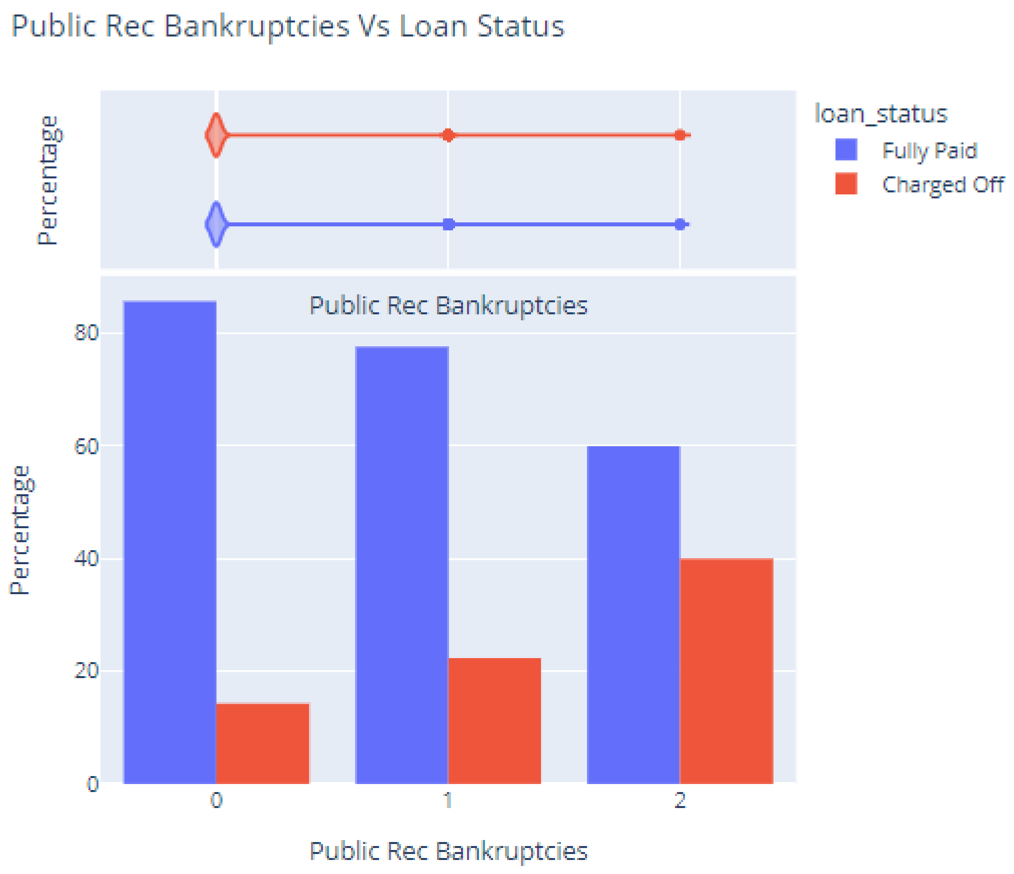


Public Records

- Higher the public records, higher the chances of loan default.

Public Bankruptcies

- Higher the public bankruptcies, higher the chances of loan default.



Conclusions

Below applicants are at high probability of defaulting a loan

- Conclusion 1 - Loan applicants with 60 months of repay term and with less Annual Income
- Conclusion 2 - Loan applicants whose home ownership is either 'Rented' or 'Mortgage' and loans issued for Small Business / Renewable Energy
- Conclusion 3 - Applicants with high interest rate, credit utilization, debts to income ratio
- Conclusion 4 - Applicants with high number of derogatory public records or high public record bankruptcies

Thank You