Lending Group Case Study

Group Members:
Mr. Bhushan Date (Group Facilitator)
Mr. Diwakar Suresh (Group Member)

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A consumer finance company has provided data of old customers for analysis. This company specialises in lending various types of loans to urban customers. When the company receives a loan application, it has to make a decision for loan approval based on the applicant's profile.

Two types of risks are associated with the bank's decision

- If the applicant is likely to repay the loan, then not approving the loan results in a loss of business to the company

- If the applicant is not likely to repay the loan, i.e. he/she is likely to default, then approving the loan may lead to a financial loss for the company.

The aim is to identify patterns which indicate if a person is likely to default, which may be used for taking actions such as denying the loan, reducing the amount of loan, lending (to risky applicants) at a higher interest rate, etc.

**Thoughtful insights are derived from provided data loan.csv file & presented in further slides.**

Approach:
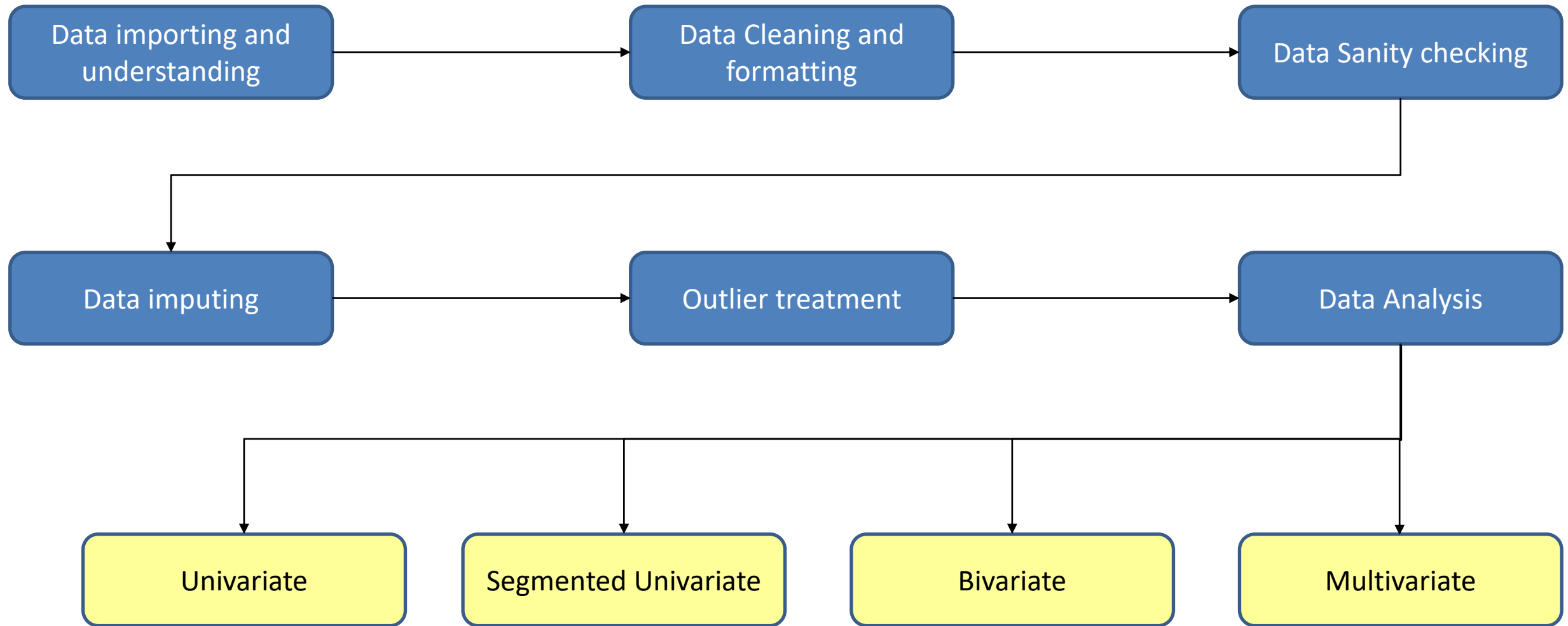
Analysis:

- Majority of customers are applying for loan amount value of 5000.
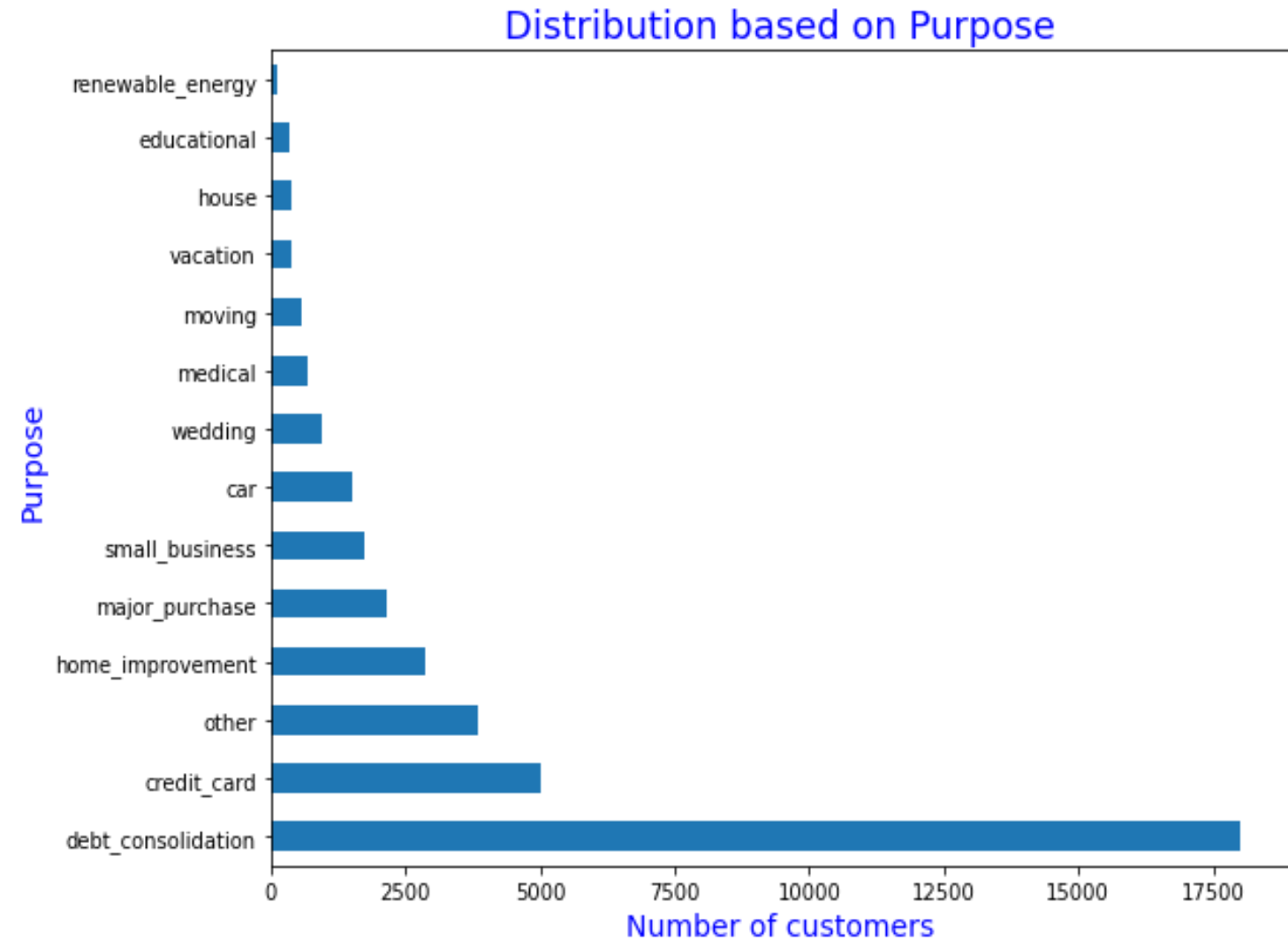
Loan amount distribution
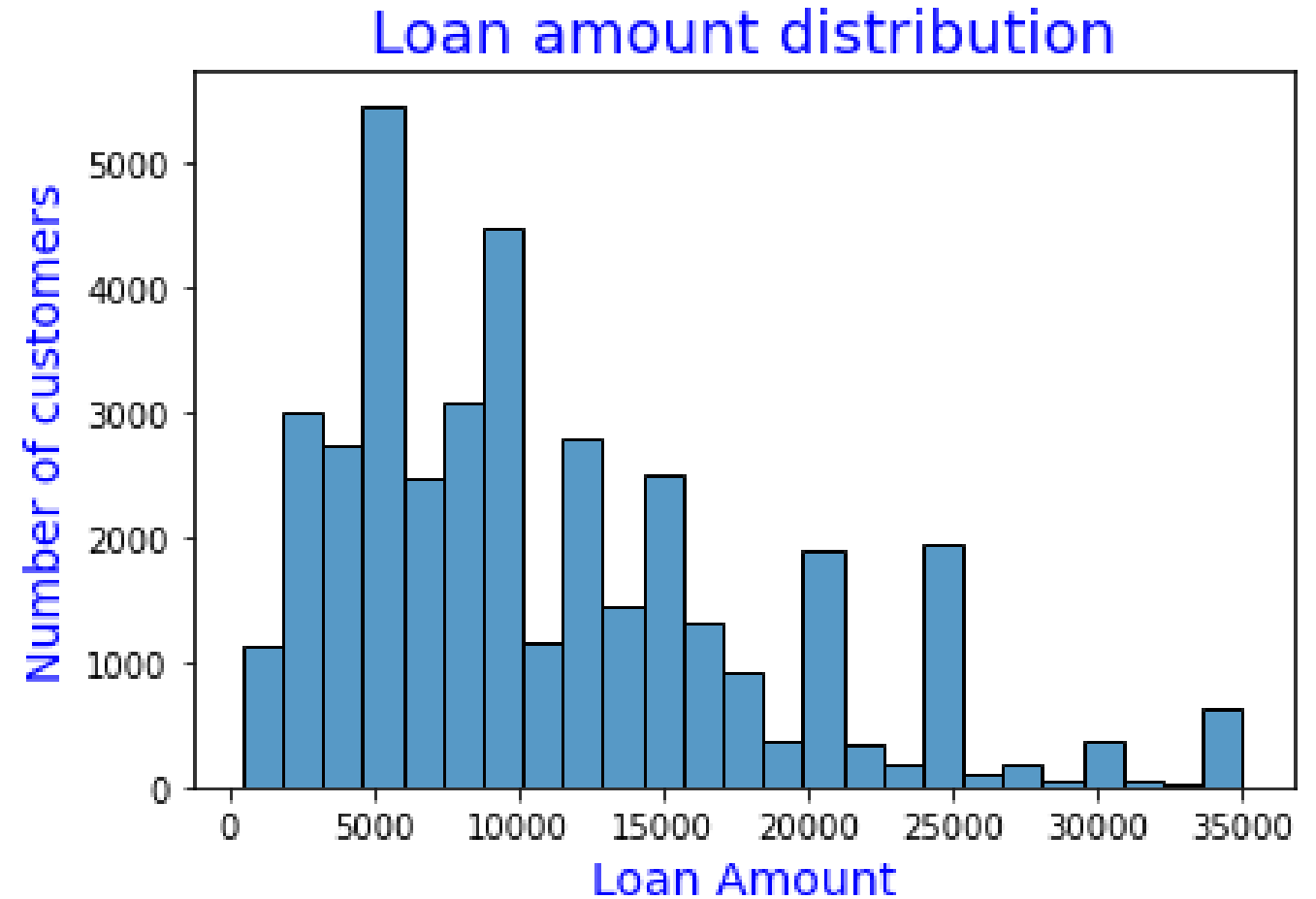
Analysis:

- Customers with no entry in public record of bankruptcies have applied for loan more than people having in public record of bankruptcies.

pub_rec_bankruptcies distribution
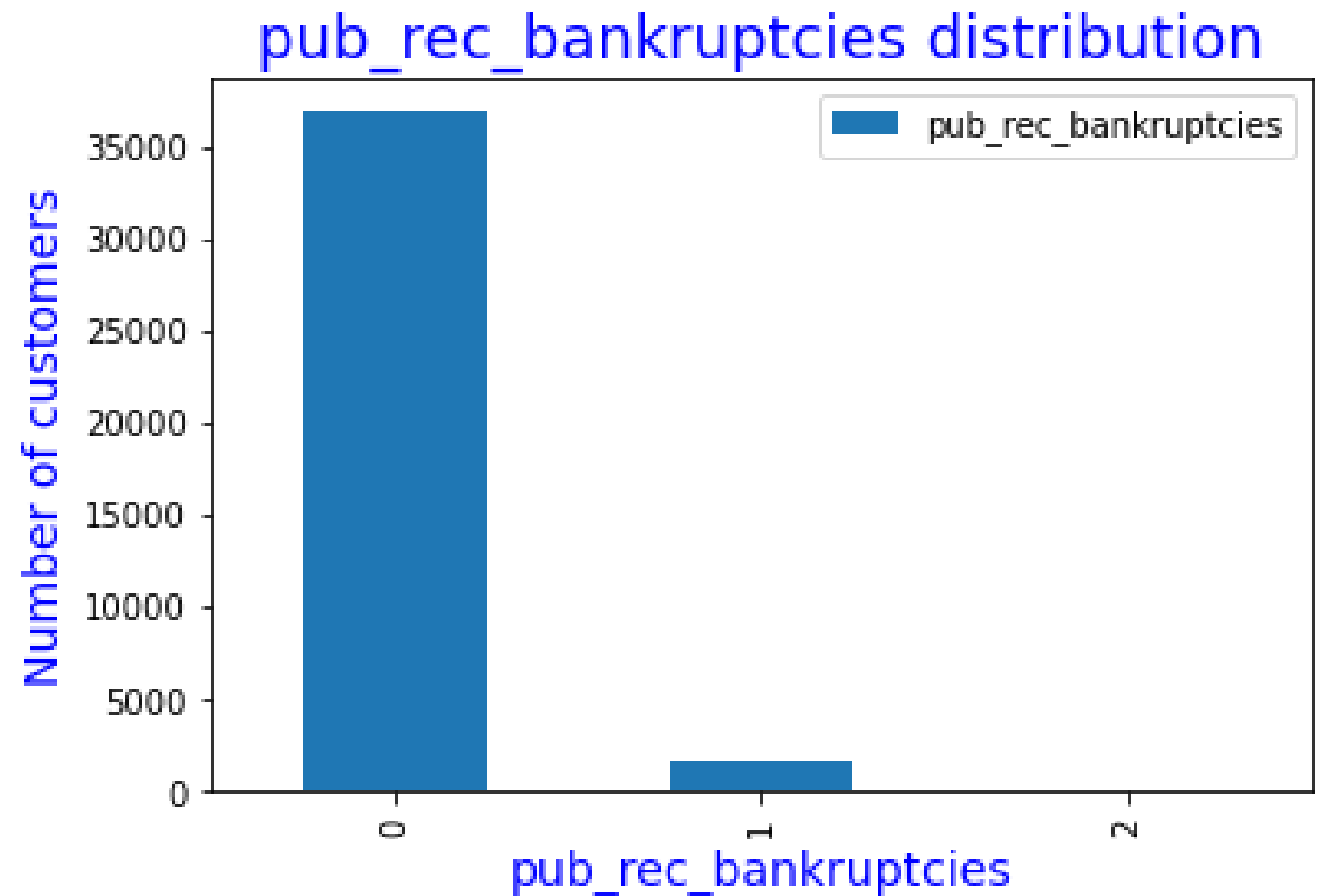
Analysis:

- Majority of customers applying for loan are applying for the purpose of debt consolidation.
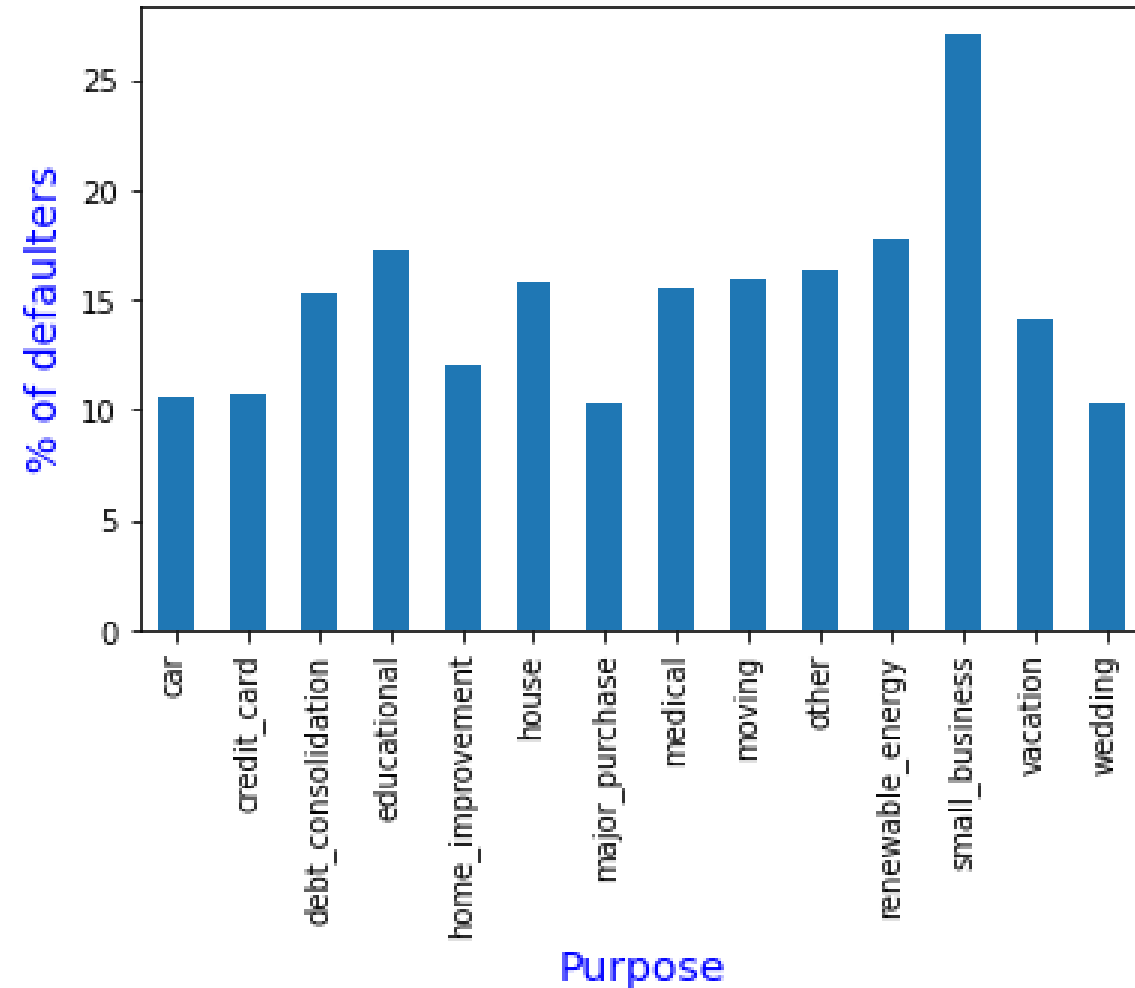

Distribution based on Purpose

Analysis:

- A person is likely to default in case he/she is applying loan with purpose of funding/establishing small business.

**Loan taken for purpose of small business is a potential factor for loan defaulting.**


Distribution based on Purpose

Analysis:

- It is clearly observed that interest rate plays major contribution in loan defaulting.
- As interest rate increases tendency of loan defaulters also increases.
- Approximately beyond interest rate of ~11% percentage of defaulters increases more relative to fully paid.

Persons getting loan with high interest rate is more likely to default
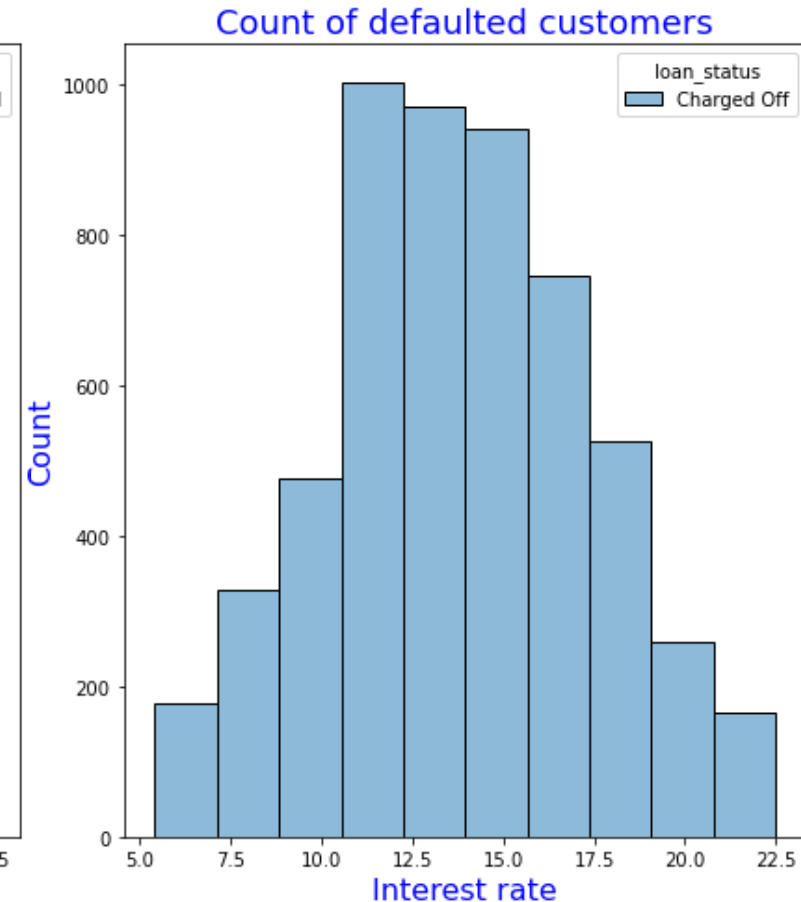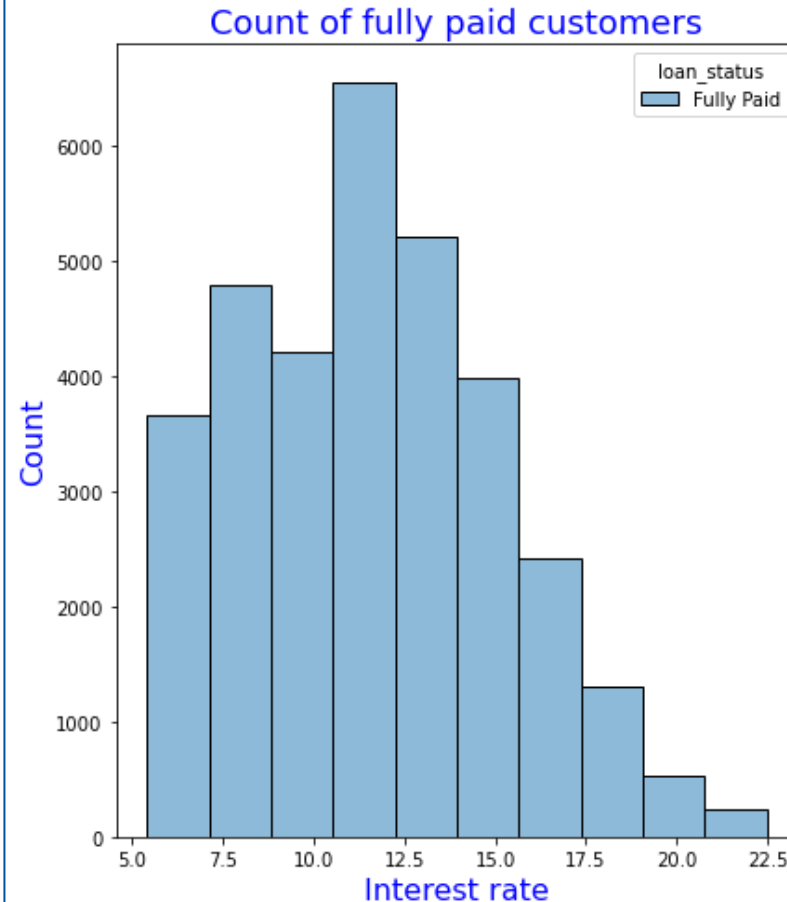
Analysis:

- According to the provided data, the loan defaulting does not have a strong correlation on the number of employment years.

Employment length vs % of defaulters

International
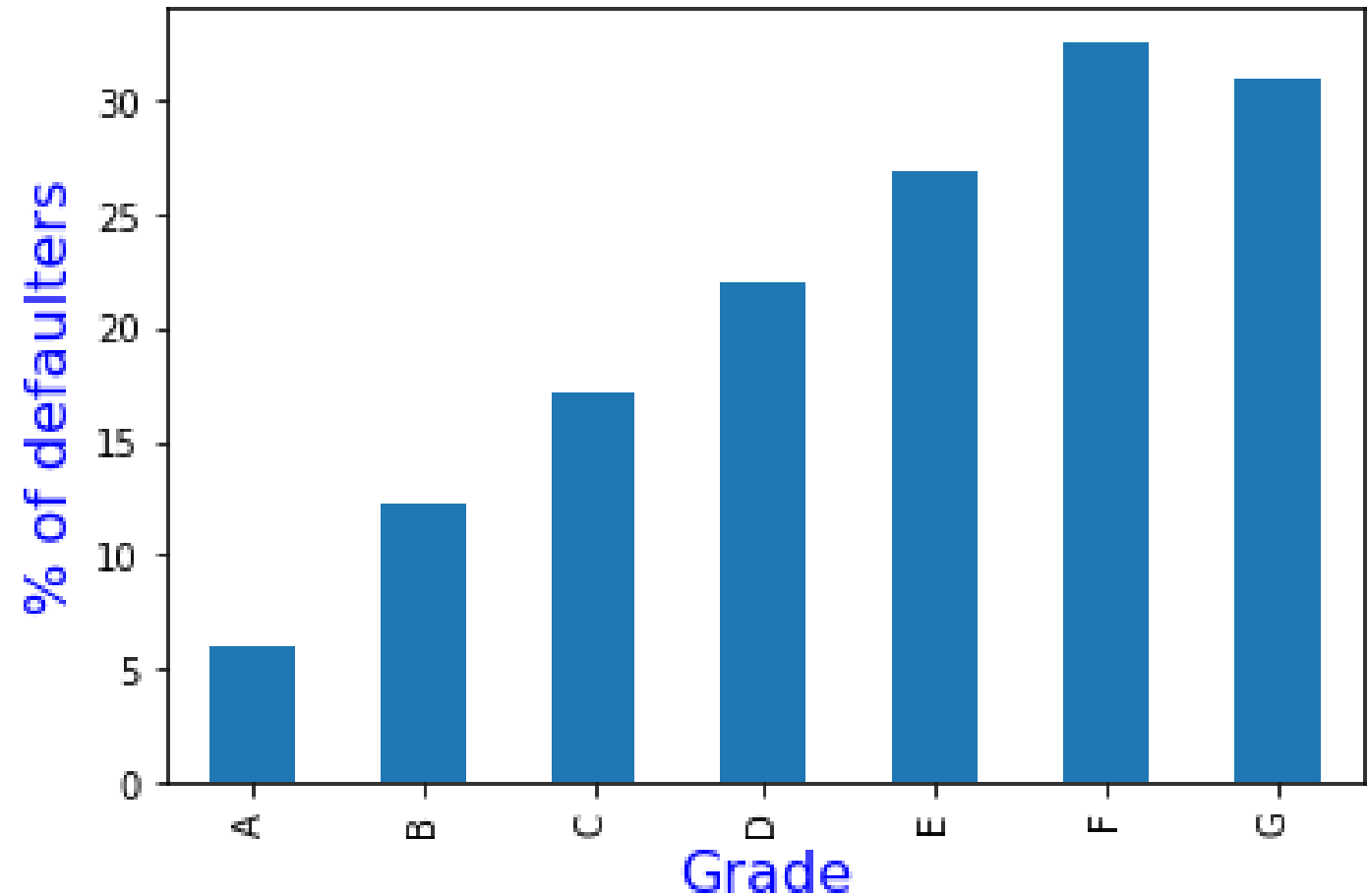Institute of Information
Technology Bangalore
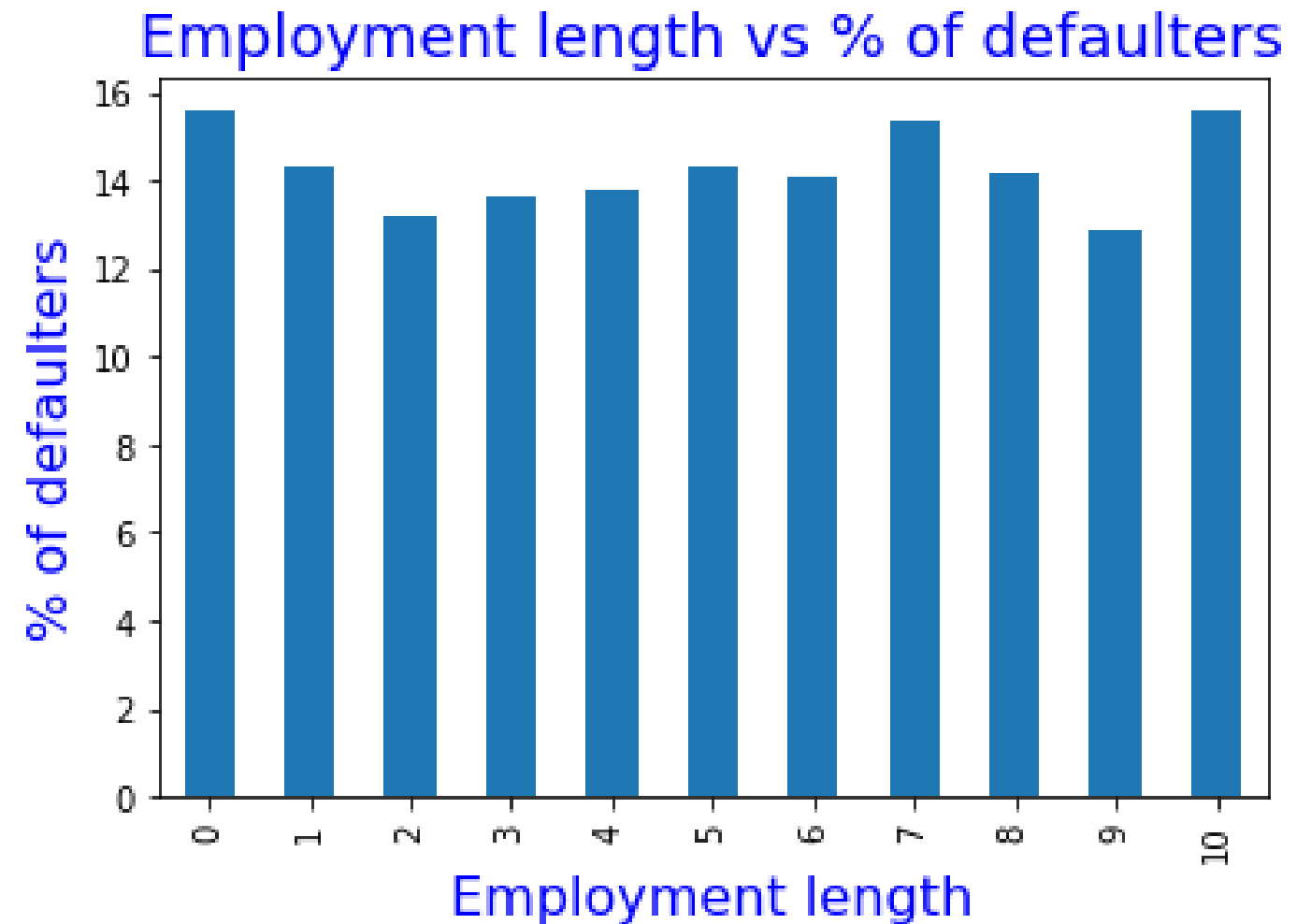
Analysis:

- As the grade of customer increases from A to G, the percentage of defaulters increases.

- Customers in Grade F are comparatively highest number of defaulters.

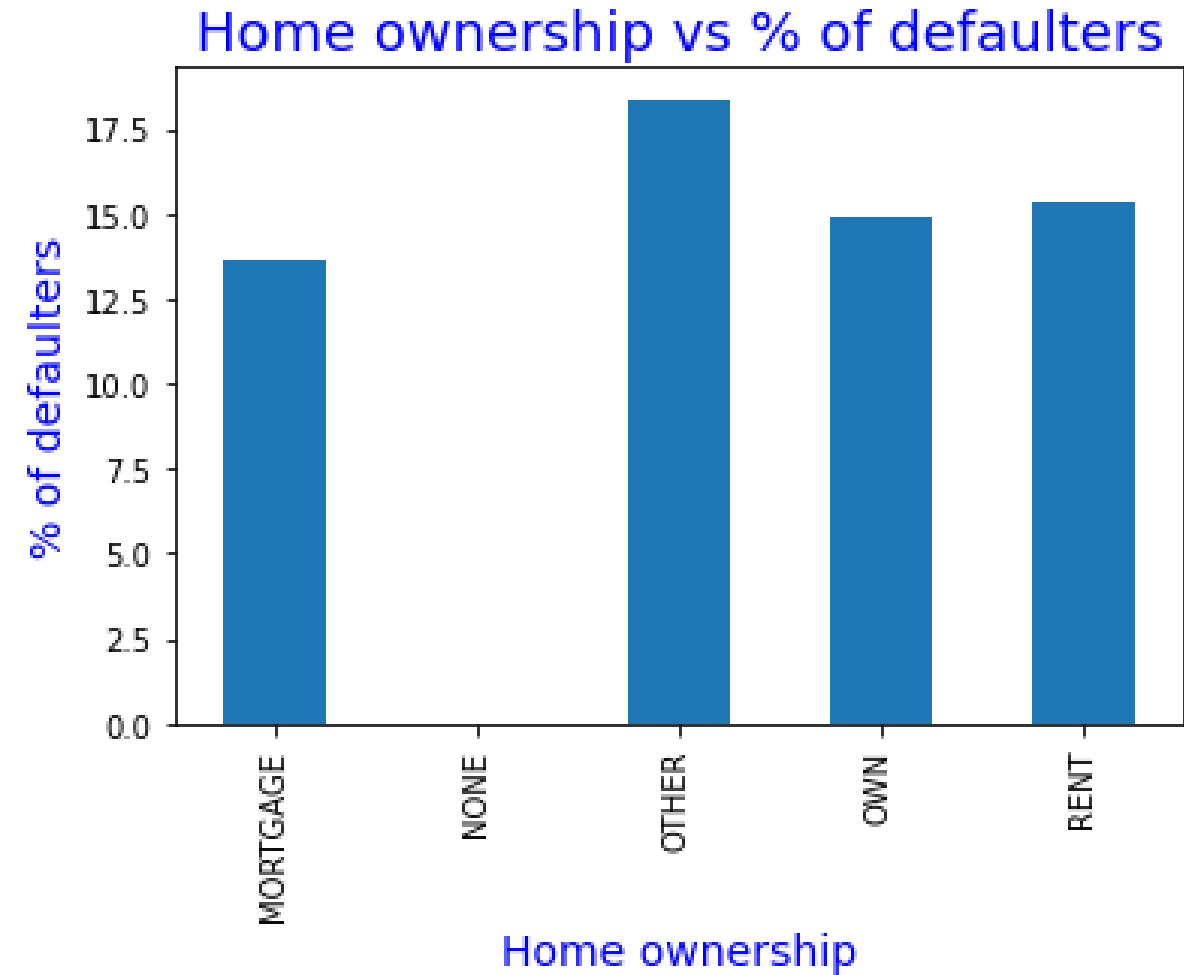**Grade of people is driving factor for loan defaulting.**

Grade vs % of defaulters

Analysis:

- Comparing percentage of defaulters verses home ownership data, Person not having home is more likely to default loan.
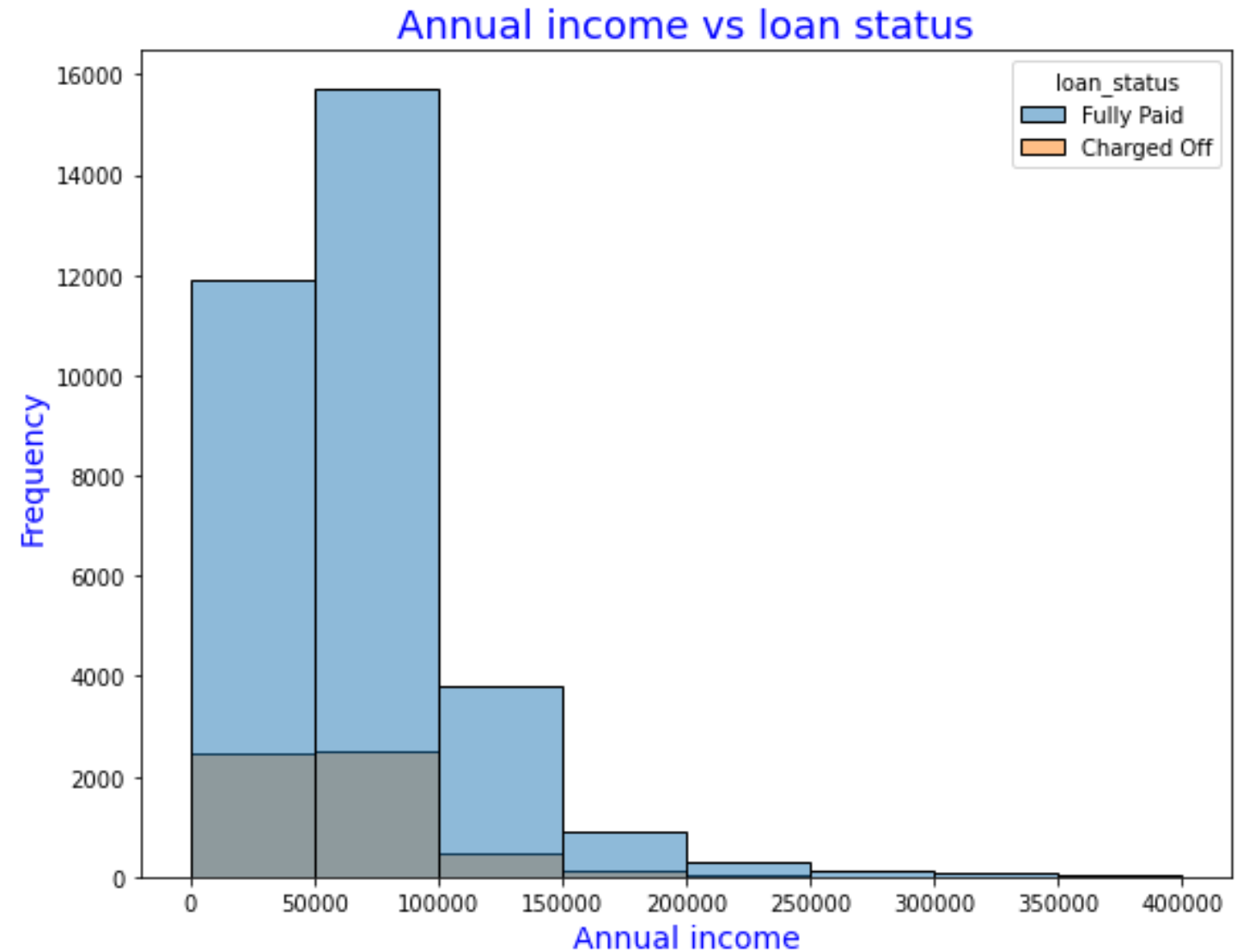
Person not having home is more likely to default loan

Home ownership vs % of defaulters

Analysis:

- As per analysis graph, Customers with less income are more likely to charge off loan.

Person with less income is likely to default loan

Annual income vs loan status

Analysis:

- As per the given data, people from State (NV), Zip code - 891xx are having more percentage of defaulters.

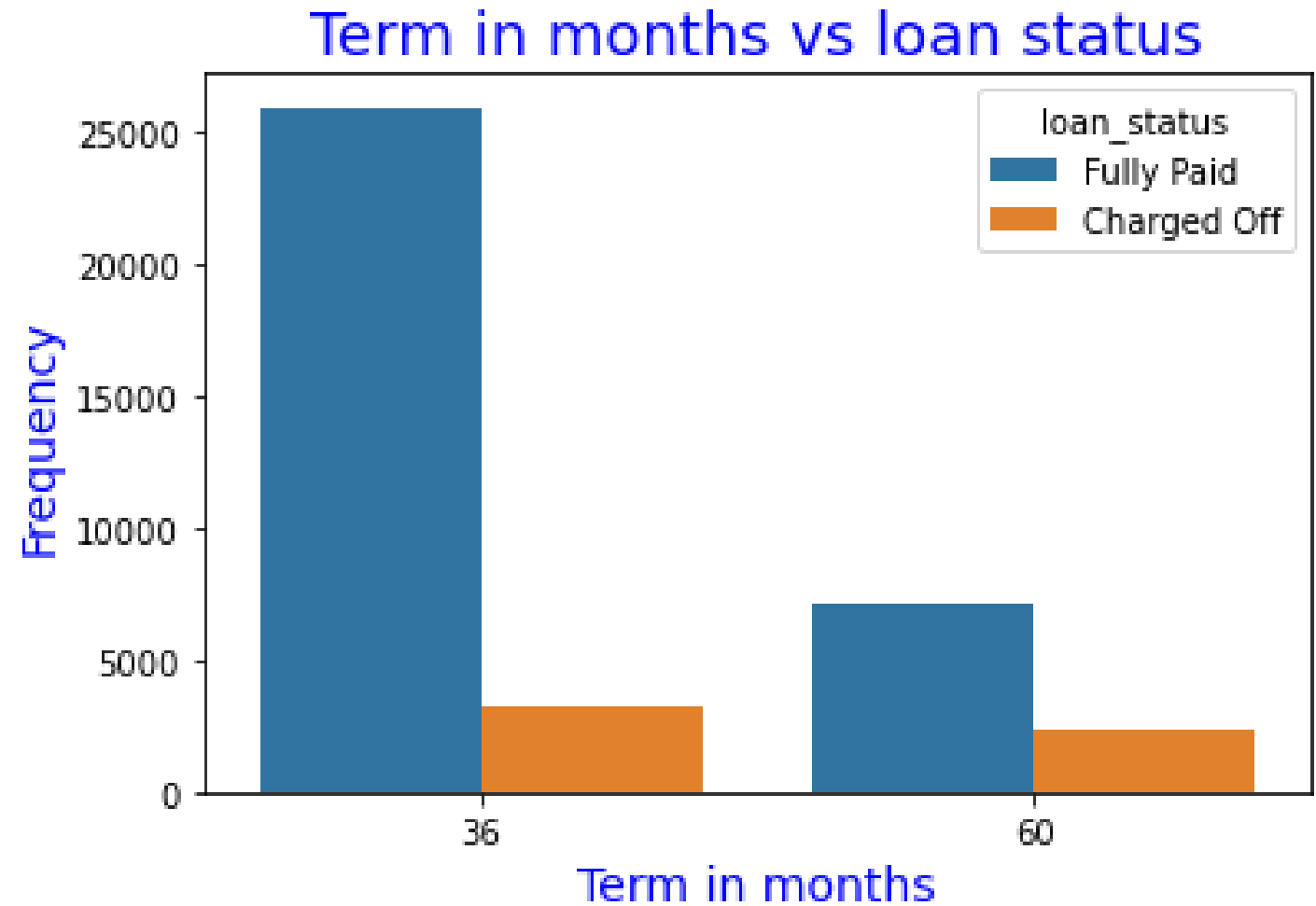**Person from NV state is more likely to default loan.**

Zip code vs loan status
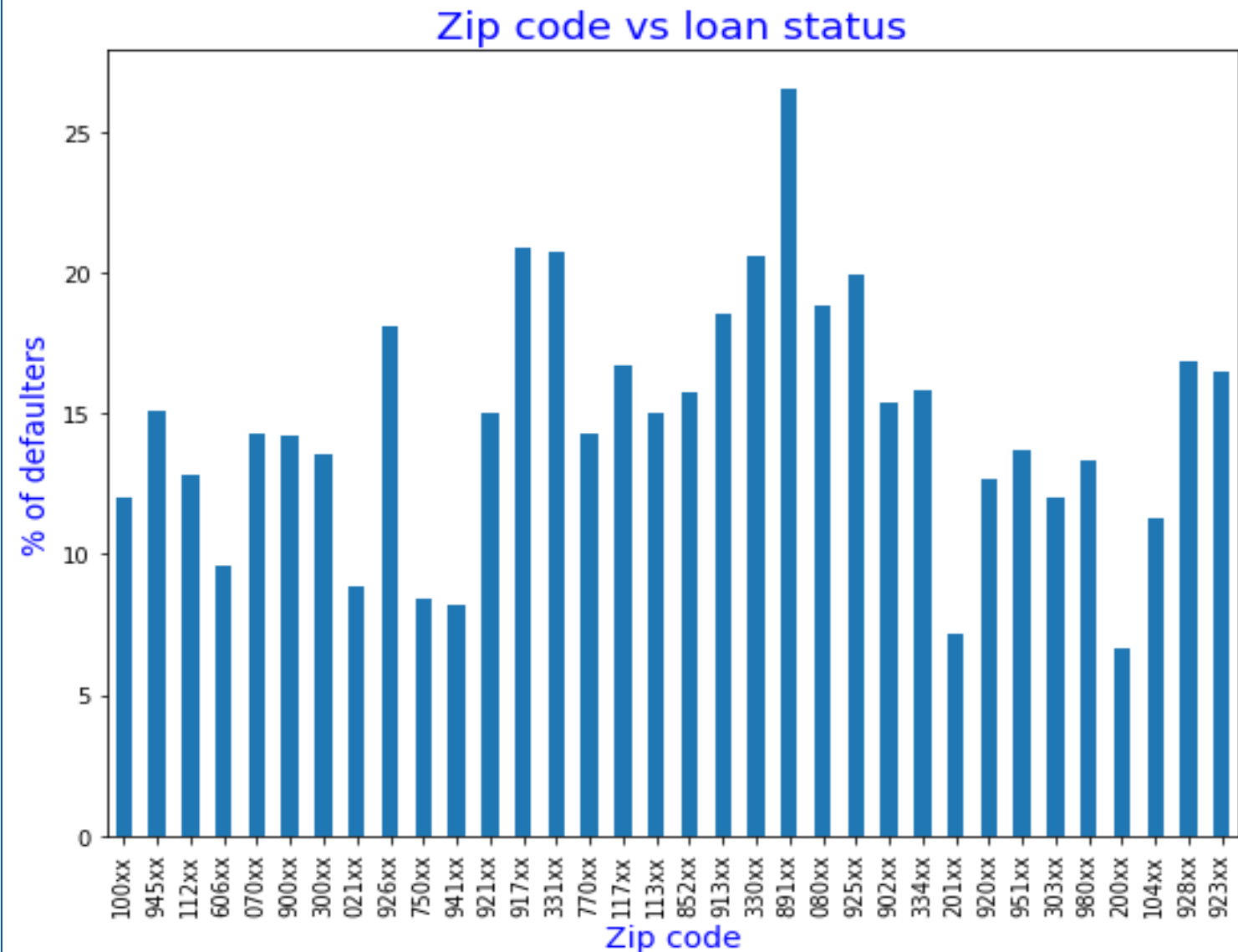
Analysis:

- It is evident that percentage of defaulters increases as the term increases.

**Person with longer term of loan are most likely to default loan.**

Term in months vs loan status

Analysis:

- It is evident that percentage of defaulters increases as the dti increases.

Person with high dti is more likely to default loan.

dti vs loan status
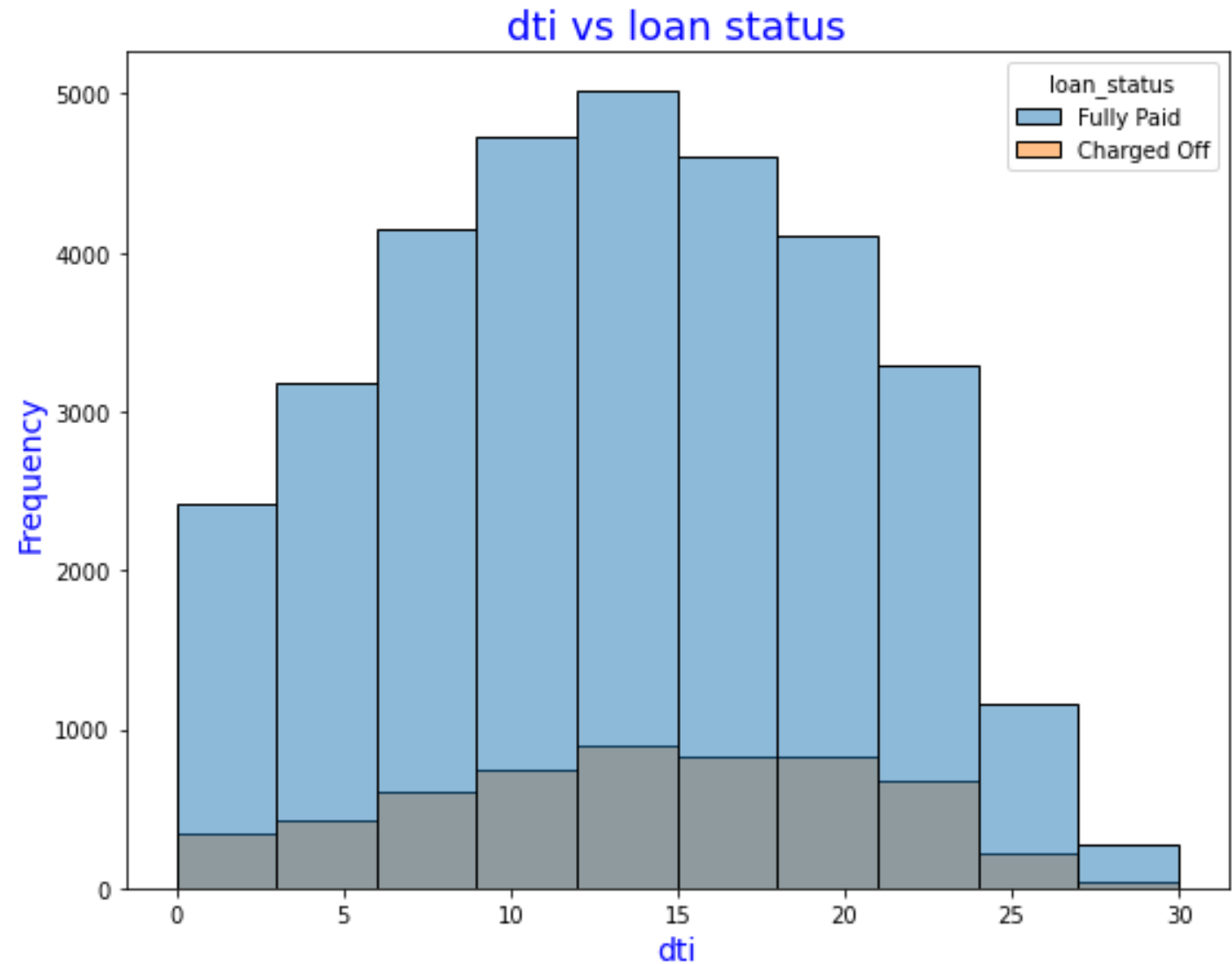
Analysis:

- The average loan amount for fully paid and charged off customers is nearly same.
- Loan amount is not a contributing factor for defaulting loan.


Loan status vs Loan amount
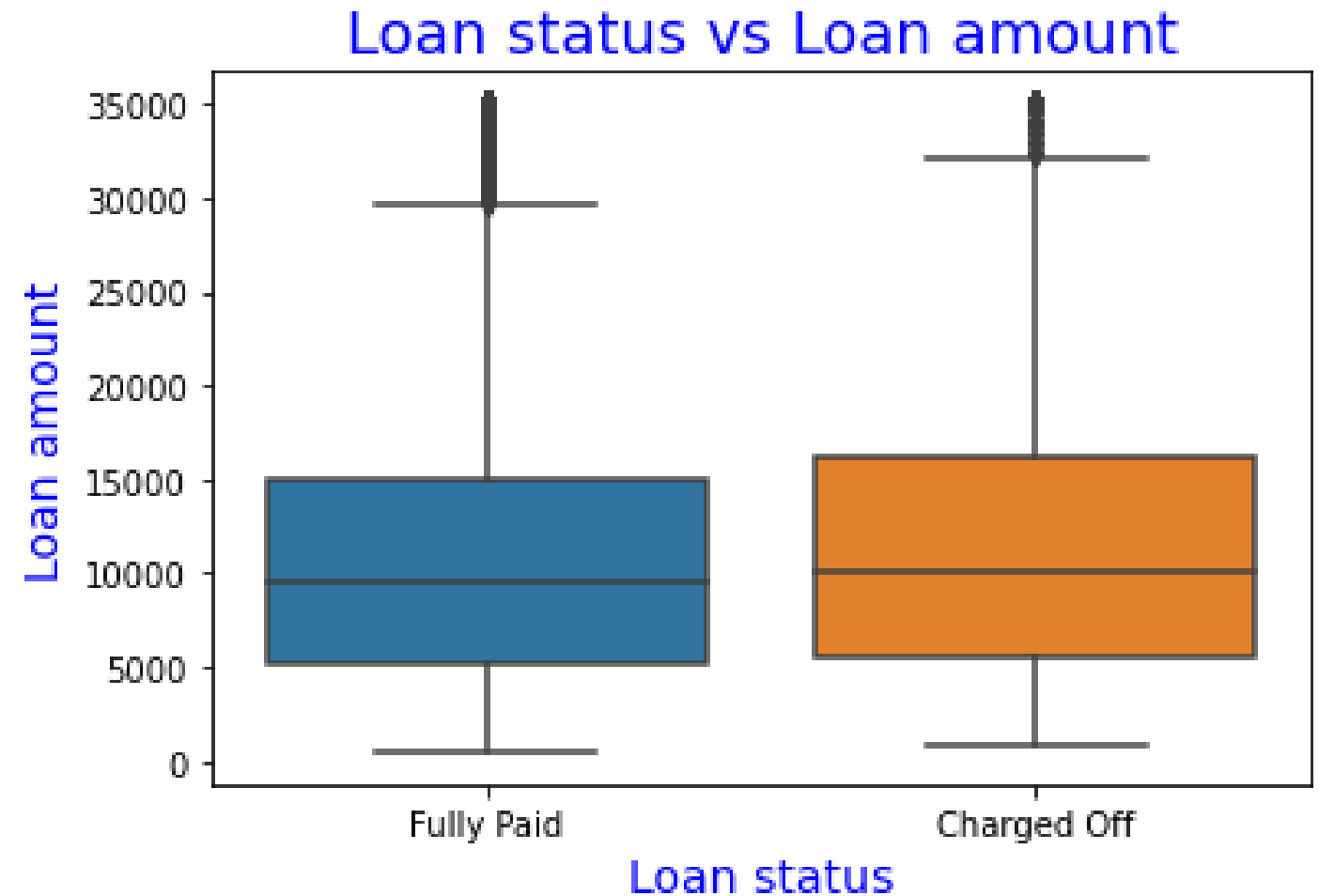
Analysis:

- It is evident that revolving credit utilization is a contributing parameter in determining the loan status.
- More the revolving balance utilization more is the tendency of defaulting loan.

People with more Revolving balance utilization is more likely to default loan.

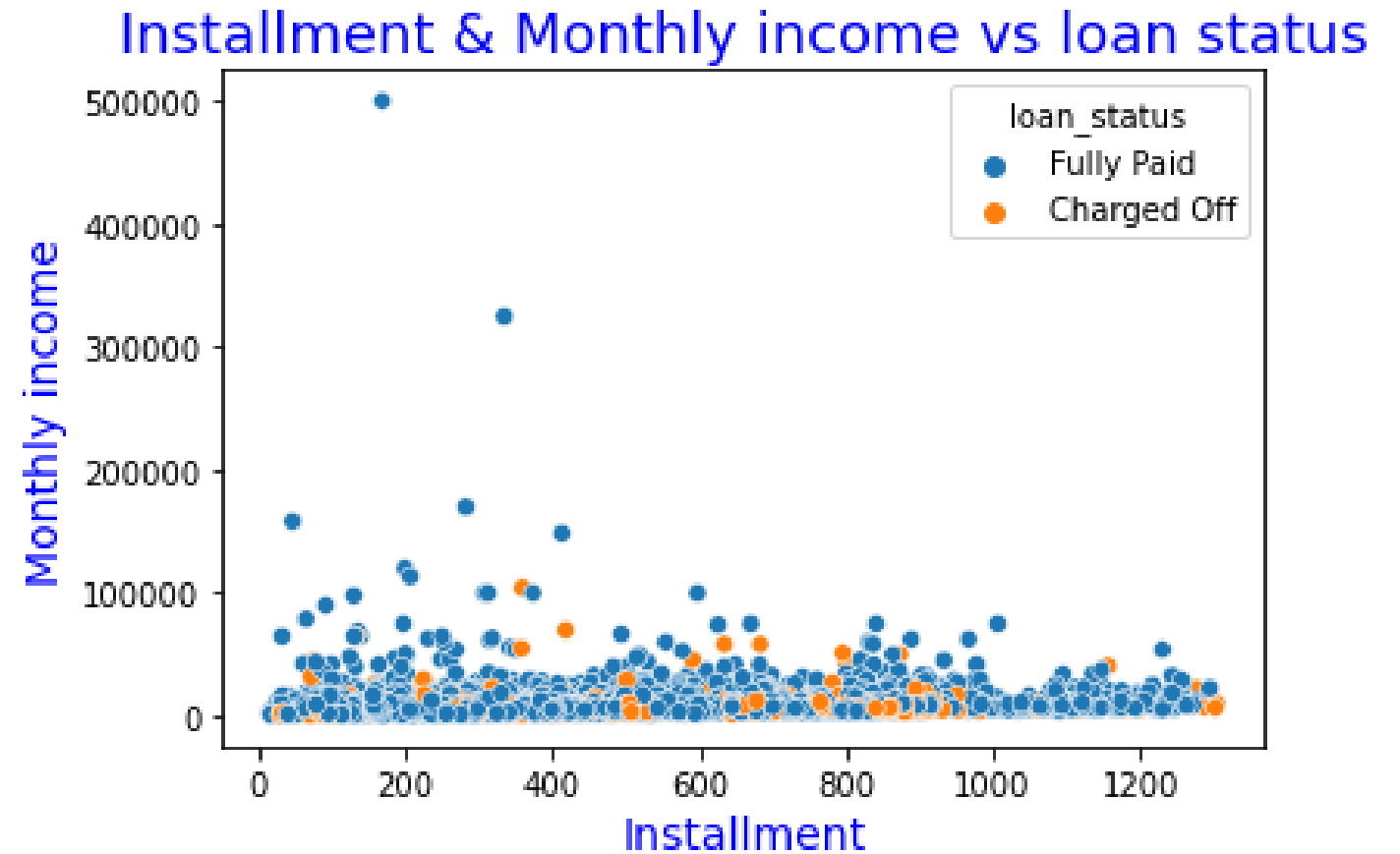
Loan status vs Revolving line utilization rate
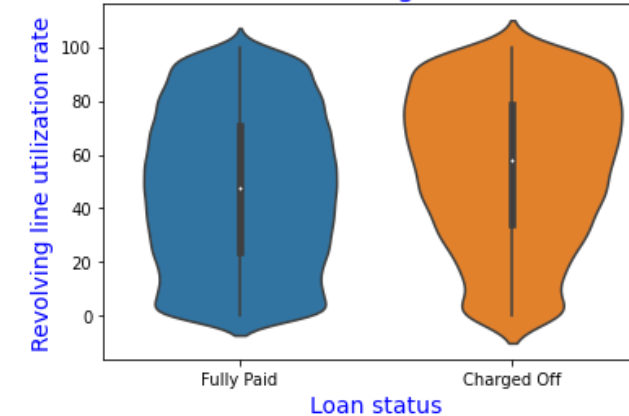

Revolving line utilization rate vs Loan status
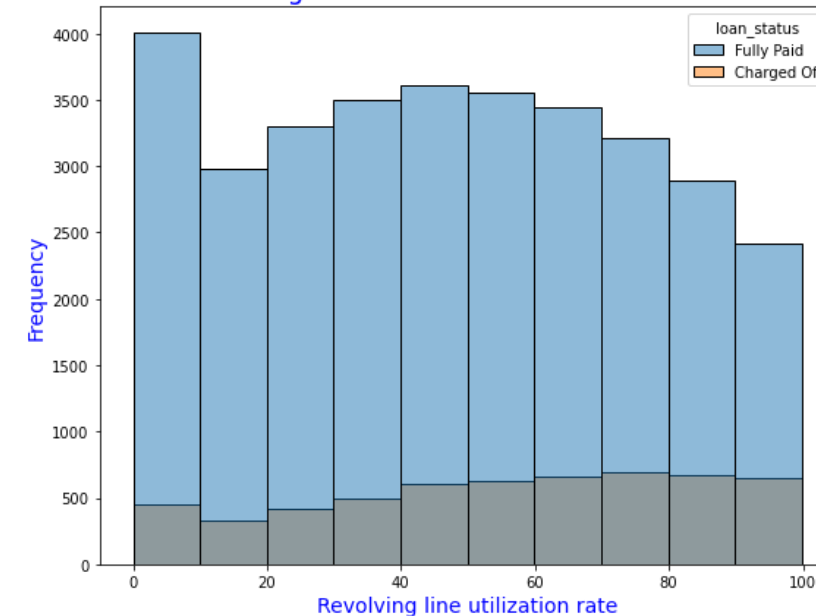
Analysis:

- As per the above scatter plot, monthly income and installments are not significant contributing factors for loan defaulting.

Installment & Monthly income vs loan status

Analysis:

- As per the above scatter plot, monthly EMI of a person is not as significant parameter for loan defaulting.
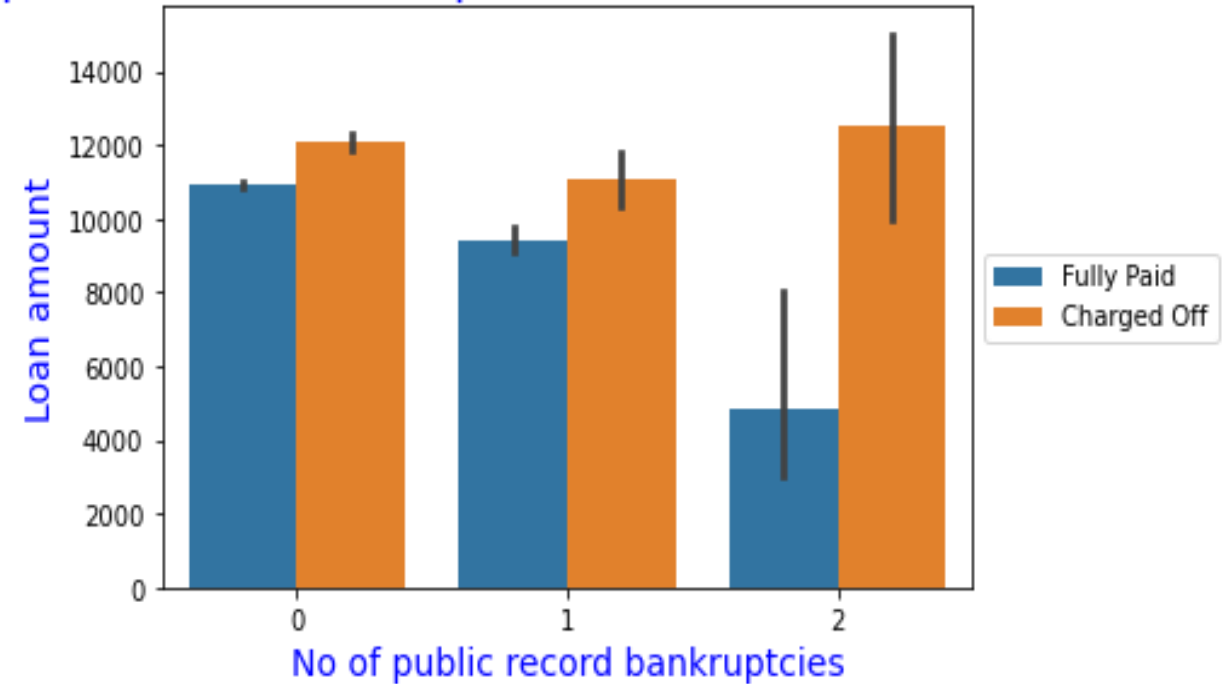

EMI & Income vs Loan status
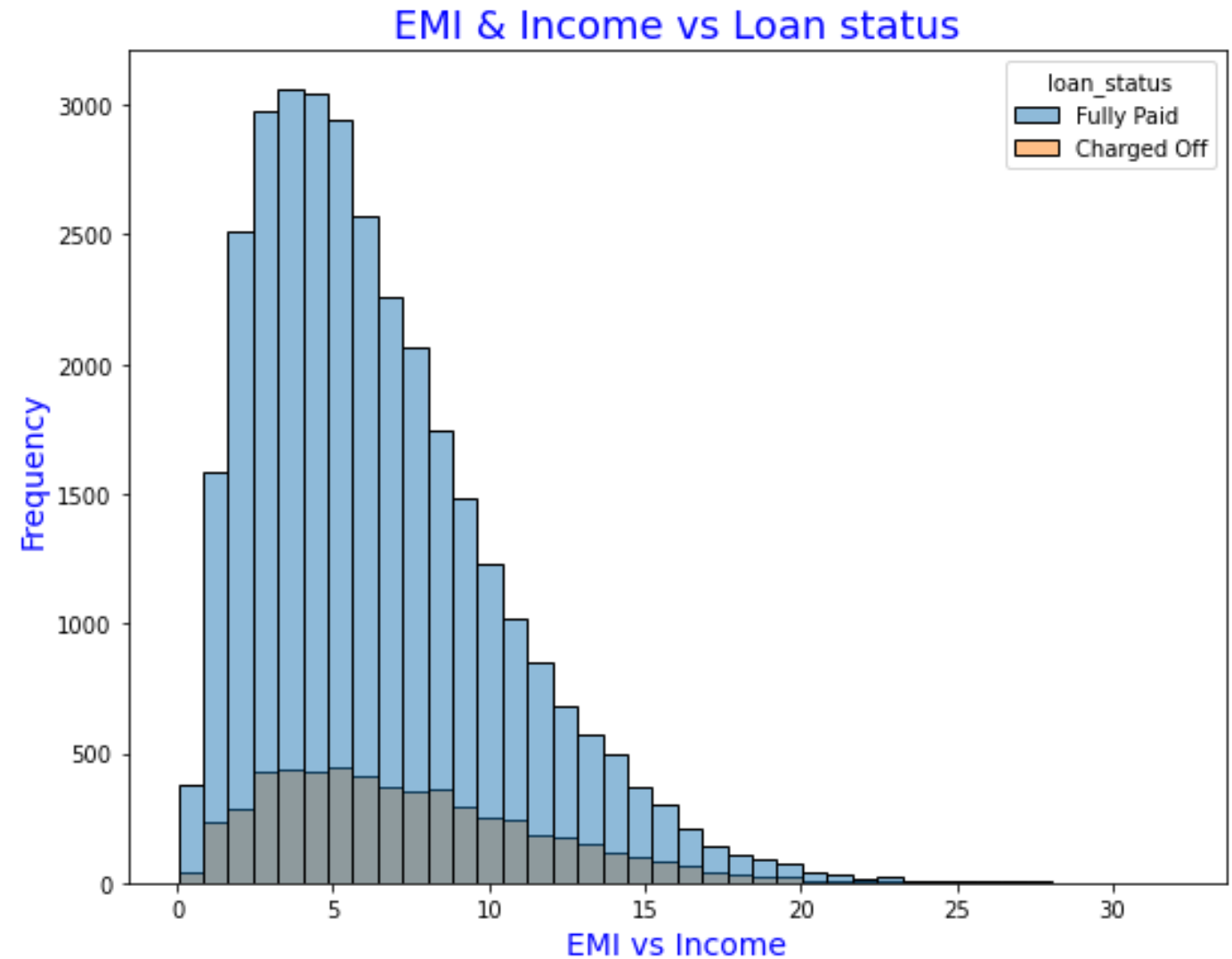
Analysis:

- Public bankruptcies is one of the driving factors of loan defaulter.
- As count of Public bankruptcies increases, number of defaulters increases while fully paid decreases.

Person with more record of public bankruptcies are likely to default the loan.

No of public record bankruptcies & Loan amount vs Loan status

Factors deciding loan defaulters are as follow,

1. **Purpose - Small business**
2. **Loan with high interest rate**
3. **Person in Grade F**
4. **Persons not having home**
5. **Persons with less income**
6. **Person living in NV state - 891xx zip code**
7. **Loan with longer term of loan**
8. **Persons with high dti**
9. **Persons with more Revolving balance utilization**
10. **Persons with more record of public bankruptcies**