



# Lending Club Case Study

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# Problem Statement

A consumer finance company which specialize in lending various types of loans to urban customers, receives a loan application, the company has to make a decision for loan approval based on the applicant's profile. u Two types of risks are associated with the bank's decision:

1. If the applicant is likely to repay the loan, then not approving the loan results in a loss of business to the company.
2. 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

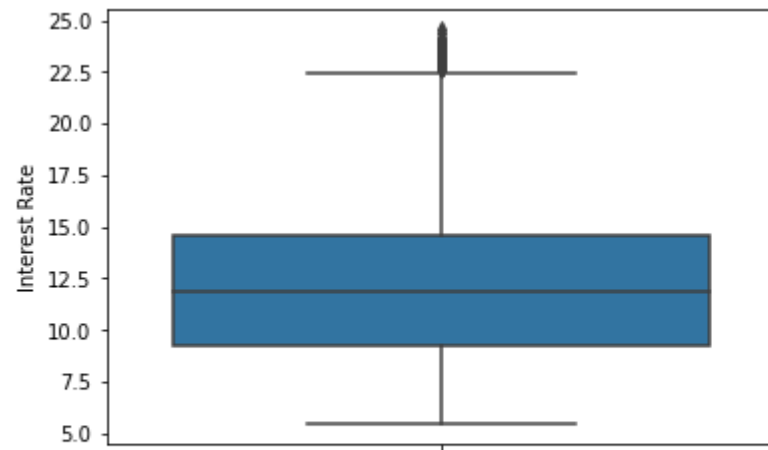
# Objective

- The company wants to understand the driving factors behind loan default so that they can utilize this knowledge for its portfolio and risk management.
- The objective of this analysis report helps the company to avoid lending loans to risky applicants who can cause financial loss when they refuse to pay or runs away with the money owed.
- The analysis is performed on data that was submitted by the applicants at the time of loan application and the data collected from the Bureau

# Analysis Result

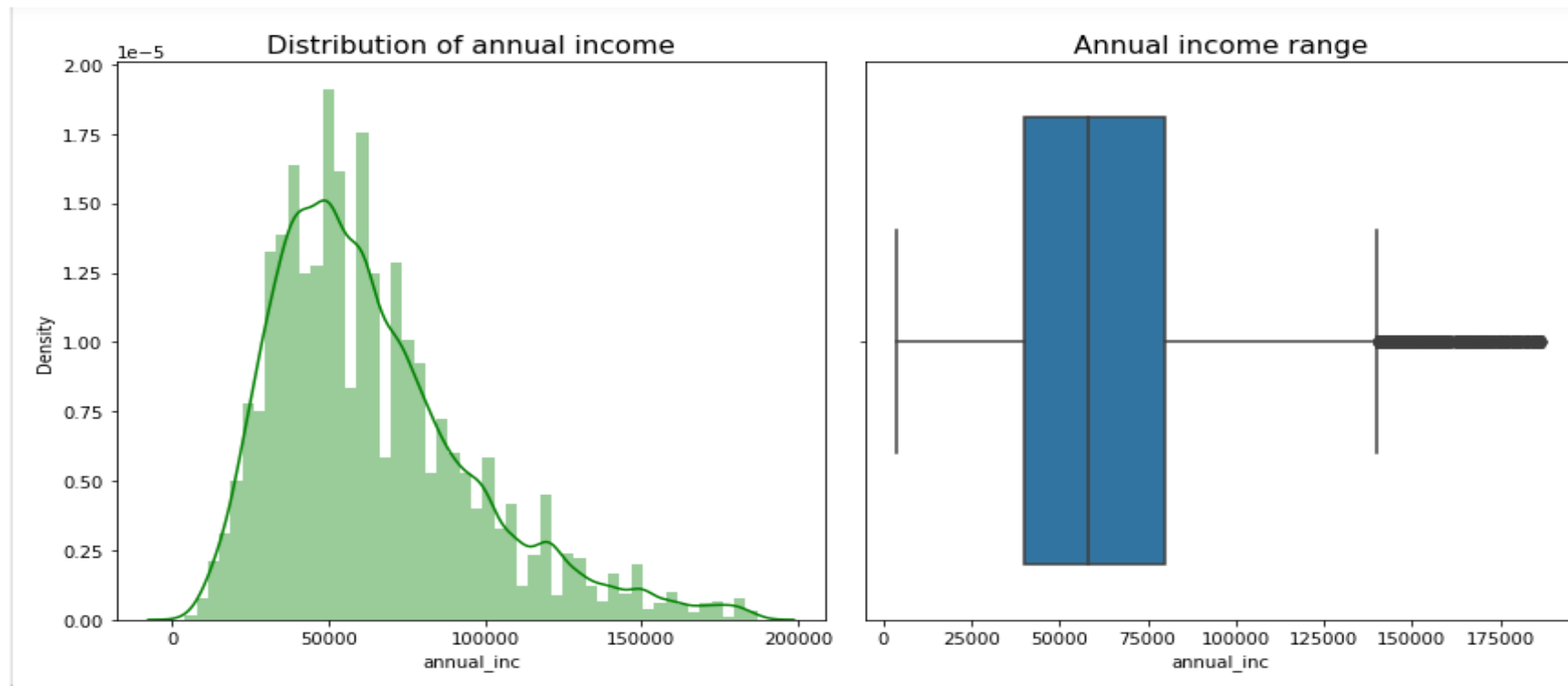
# Loan Amount

- Loan Amount Analysis



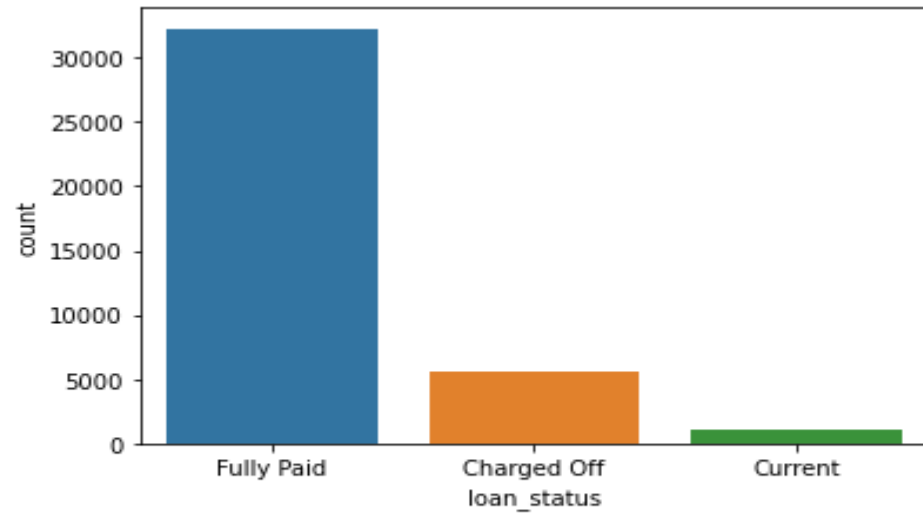
The above plots show that the majority of loan have interest rate range from 9% - 15%. Maximum it goes upto 25%

# Annual Income



**After treating the outliers in annual income, boxplot looks much better. Most of applicants have income less than \$80000 year**

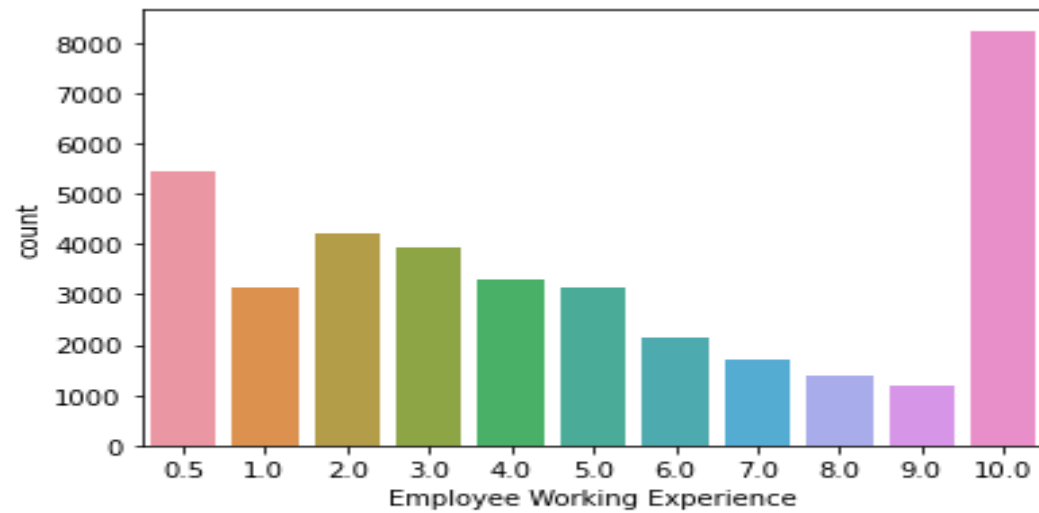
# Loan Status



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***Loan\_Status = shows that around 14%(5000) of loans are Charged Off where applicant has not paid the instalments***

# Employee Length

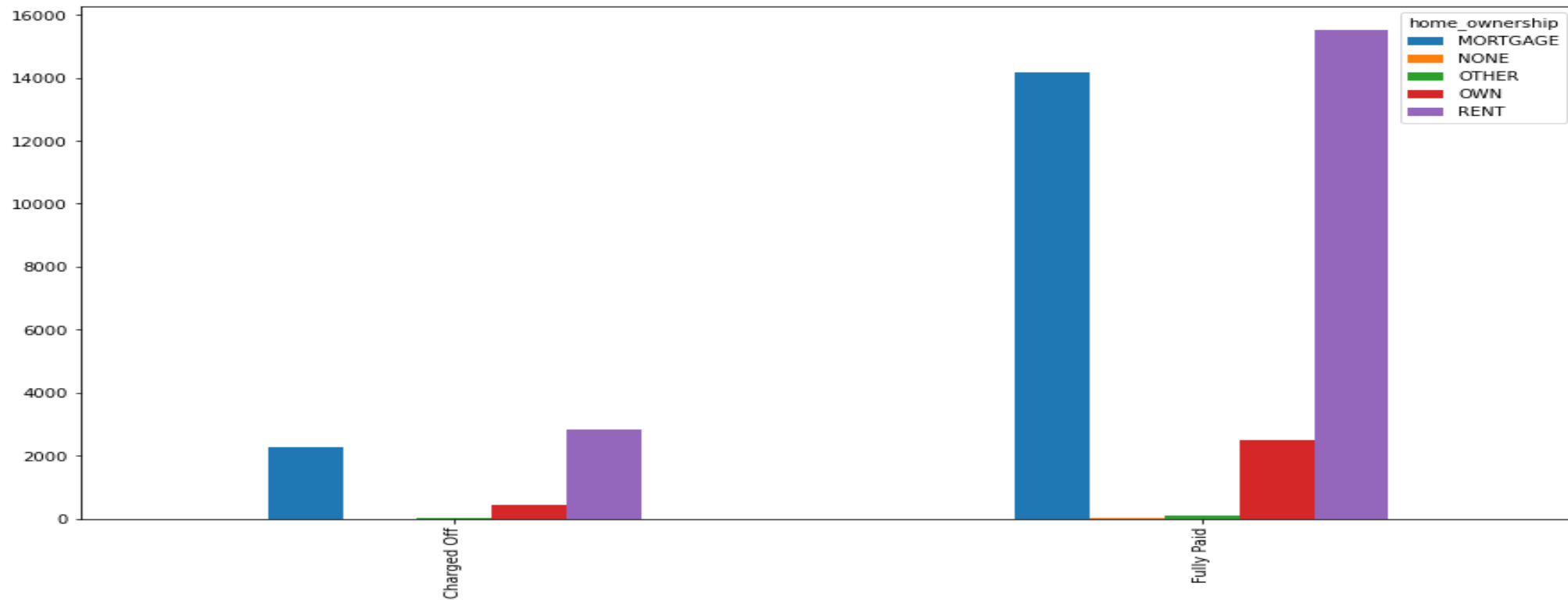


***Inference: Majority of employees applying for the loan have more than 10 years of experience***



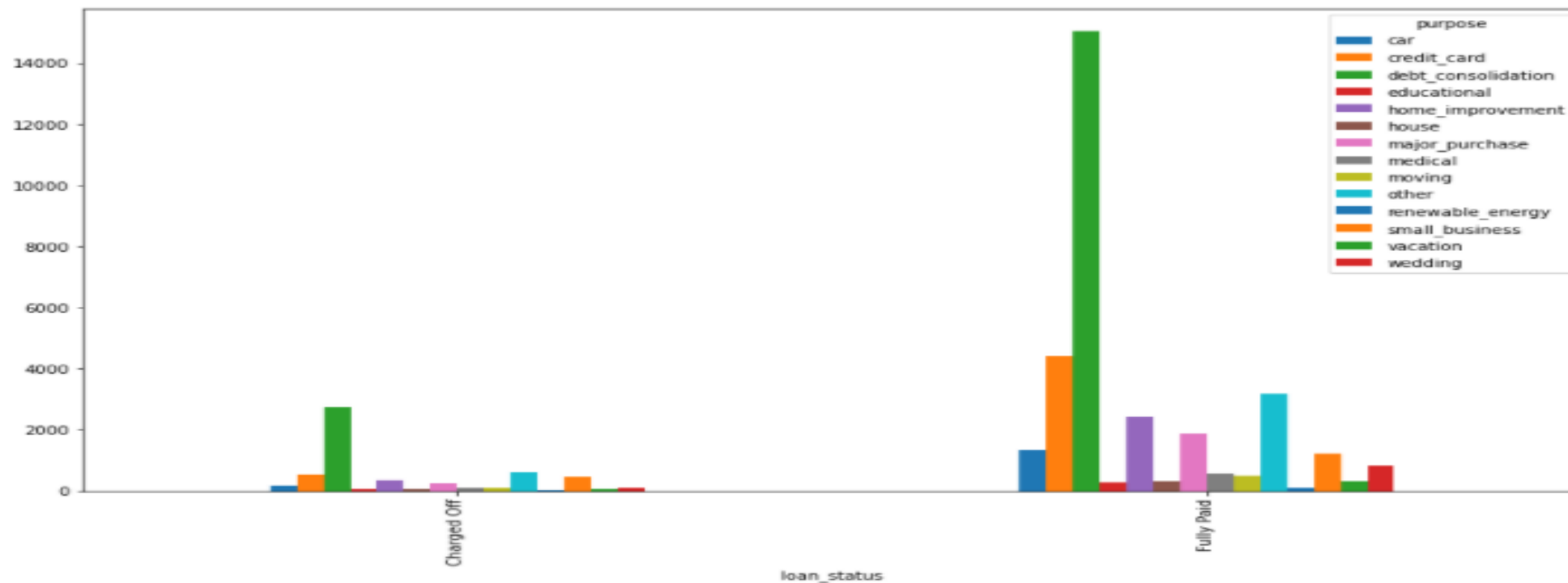
# Segmented Univariate Analysis

# Home Ownership vs Loan Status



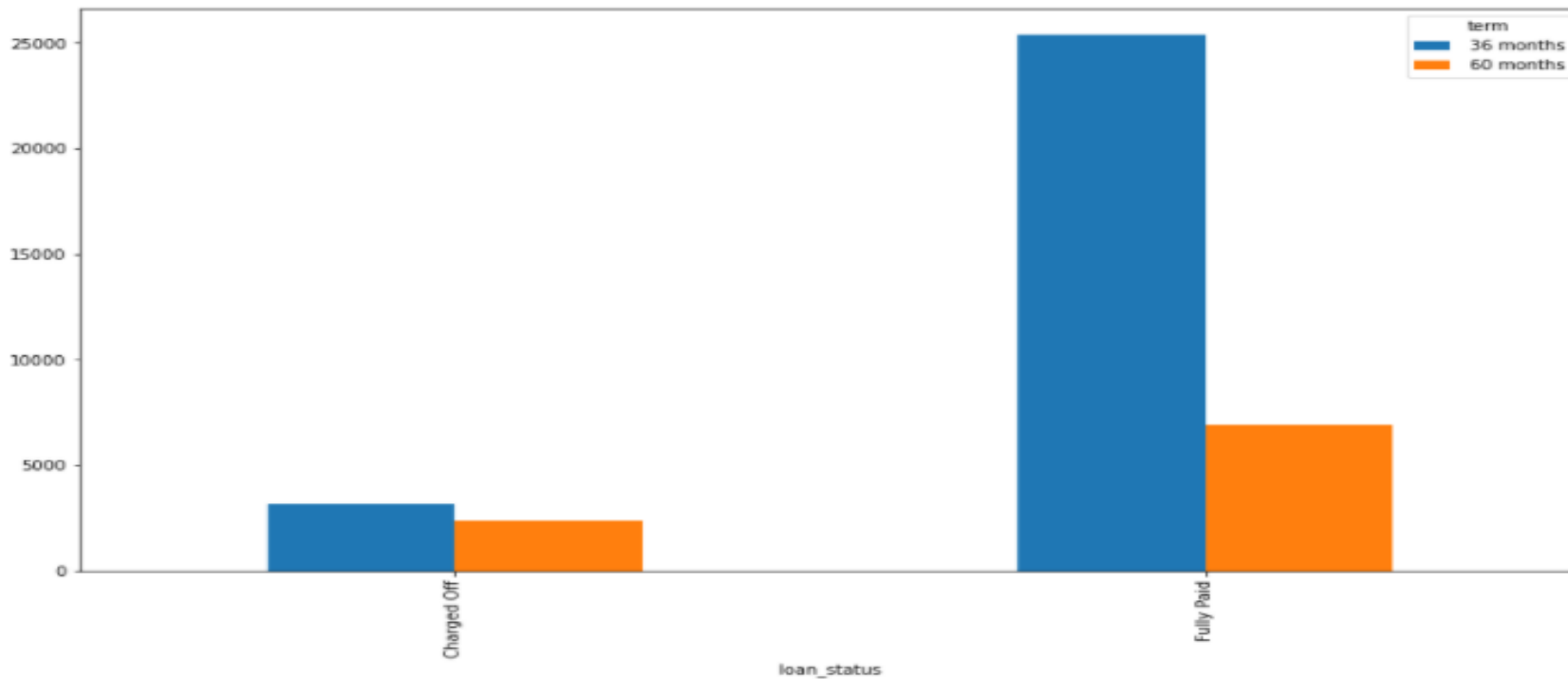
Most of the applicant's home ownership status is "Mortgage" or "Rent". This number is also high in Charged Off loans.

# Purpose vs Loan Status



The above plot shows that the purpose on majority of loans are debt consolidation. The number is also high on Charged Off loans.

# Term vs Loan Status

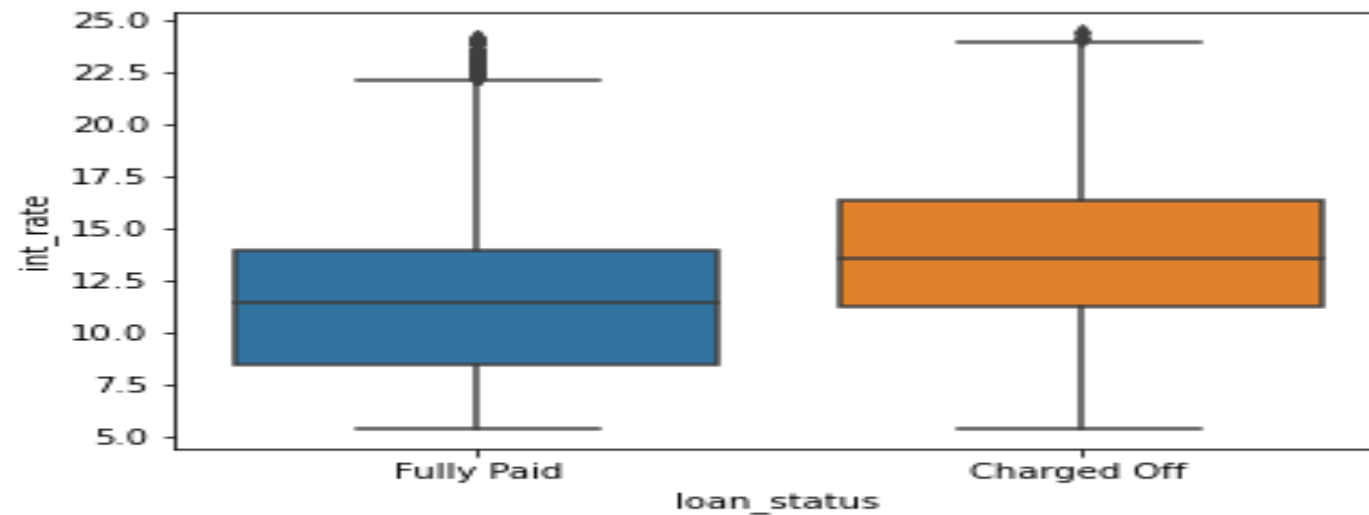


**Most of loans have 36 months term. This number is also high in Charged Off loans but the ratio of 60 months is higher on Charged Off as compared to 36 months.**

# Bivariate Analysis

# Interest rate vs loan Status

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<AxesSubplot:xlabel='loan_status', ylabel='int_rate'>
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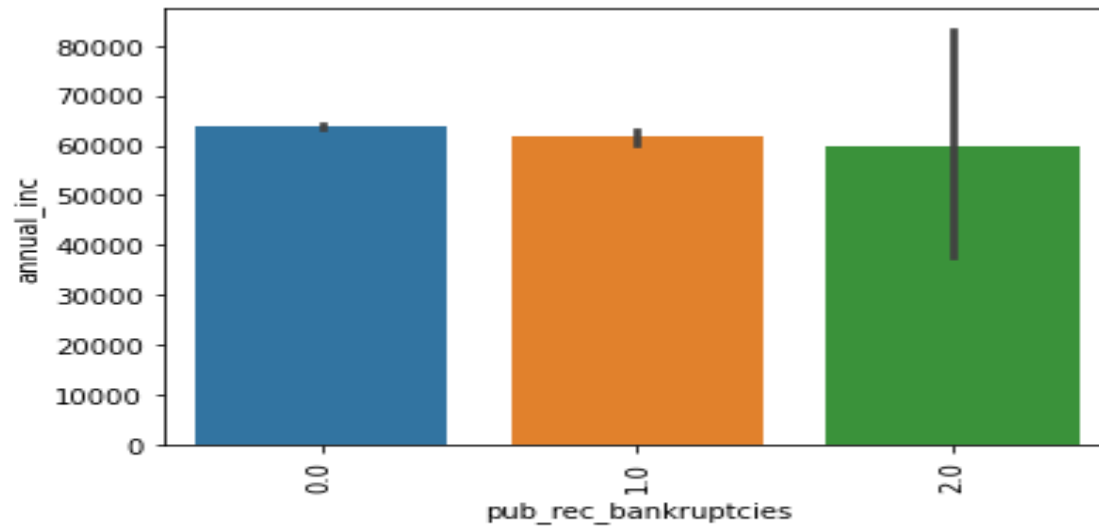


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***As the interest rate increases the number of defaulters also increases***

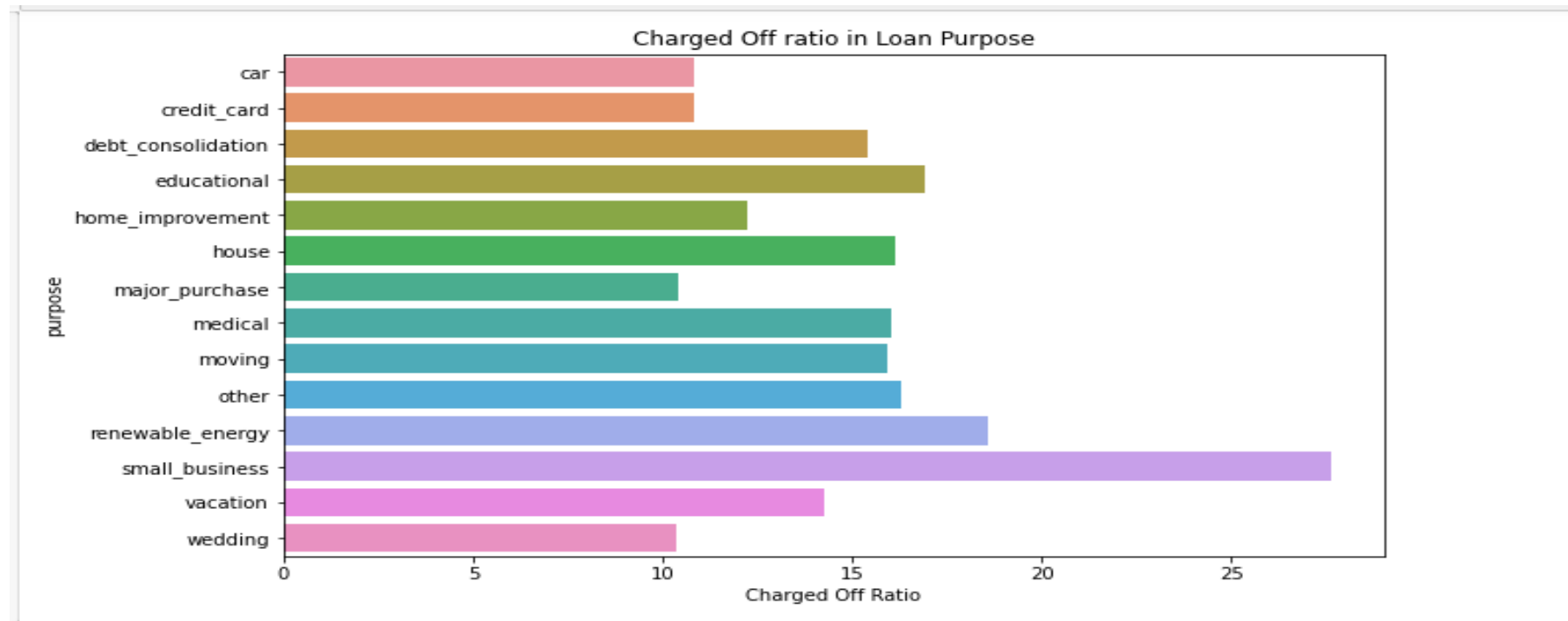
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# Annual income vs pub\_rec\_bankruptcies



***Number of public record bankruptcies is high for applications having less than 60k***

# Charged off ratio vs Purpose



The above plot shows that the loan taken for Small Business purpose are likely to get Charged Off.



# Conclusions and Recommendations

- 1.Loan\_Amount = majority of the loan amount ranges from 5k to 15k and maximum goes upto 35k
- 2.Interest\_rate = majority of loan have interest rate range from 9% - 15%. Maximum it goes upto 25%
- 3.Annual\_income = Most of applicants have income less than \$80000 year
- 4.Loan\_Status = shows that around 14%(5000) of loans are Charged Off where applicant has not paid the instalments
- 5.Employee work experience = Majority of employees applying for the loan have more than 10 years of experience

1.home ownership = Most of the applicant's home ownership status is "Mortgage" or "Rent". This number is also high in Charged Off loans.

2.Purpose = purpose of majority loans is debt consolidation. The number is also high on Charged Off loans.

3.Verification Status = For most loans, income verification status is Not Verified. This number is also high on Charged Off loans.

4.Term = Most of loans have 36 months term. This number is also high in Charged Off loans.

5.int\_rate vs loan\_status = As the interest rate increases the number of defaulters also increases

6.annual\_inc vs bankruptcies = Number of public record bankruptcies is high for applications having less than 60k

7.purpose vs charged\_off ratio = loan taken for Small Business purpose are likely to get Charged Off.

4.address\_state vs loan\_status = Applications with addr\_state = CA seems to have high number of defaulters