

LENDING CLUB CASE STUDY

GROUP MEMBERS:

1. PADMAVATHI D
2. VINODA VARSHINI RAJAGOPAL

Case Study Objectives

- Identification of Loan Applicant traits that tend to 'default' paying back
- Understand the 'Driving Factors' or 'Driver Variables' behind Loan Default phenomena
- Loan Lending Organizations may choose to utilize this knowledge for its portfolio and risk assessment of new loan applicants

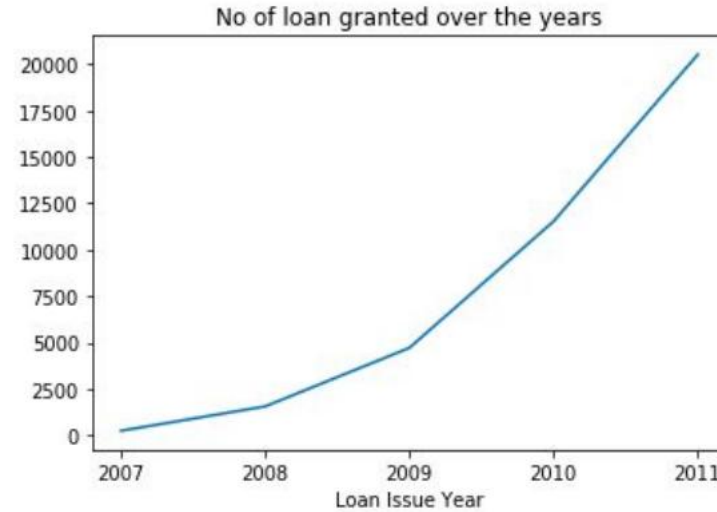
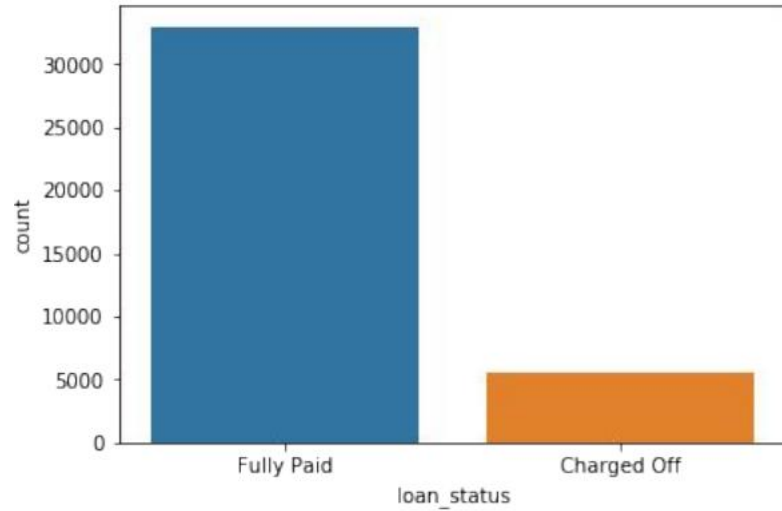
Data Cleaning Steps

- **Delete columns:** Dropping columns containing NAN values, description, id related columns & which does not have enough meaningful information towards our analysis.
- **Remove outliers:** Remove high and low values that would disproportionately affect the results of our analysis.
- **Missing values:** Replace the missing values with mean & mode values & also derived from the existing columns.
- **Duplicate data:** Remove identical rows, remove rows where some columns are identical.
- **Filter rows:** Filter by segment, filter by date period to get only the rows relevant to the analysis.

Analysis

- The essence of the whole project is to analyze and understand how consumer attributes and loan attributes are influencing the tendency of defaulting.
- We performed data cleaning and preparation on the Loan dataset:
 - Imputed the NA values for all the variables
 - Created two new columns:
 - Profit and Loss column
 - Ratio of funded amount and annual income
- During univariate analysis we have created:
 - Histograms and Bar charts to check out the distribution of all the driver variables
 - Box plots to detect the Outliers
 - Performed the Multivariate analysis to understand how different variables interact with each other.

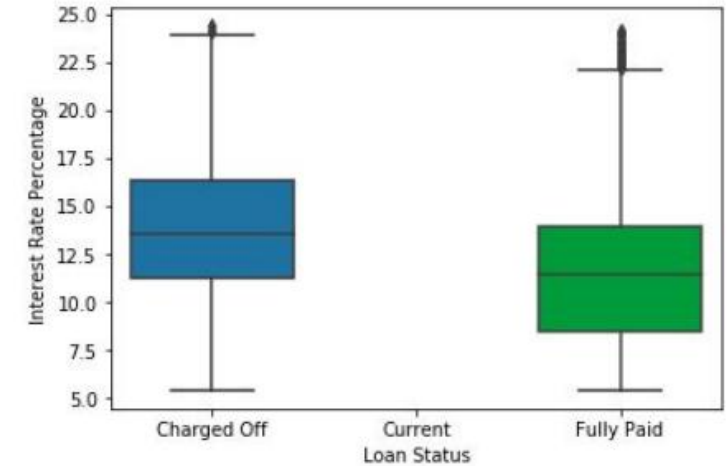
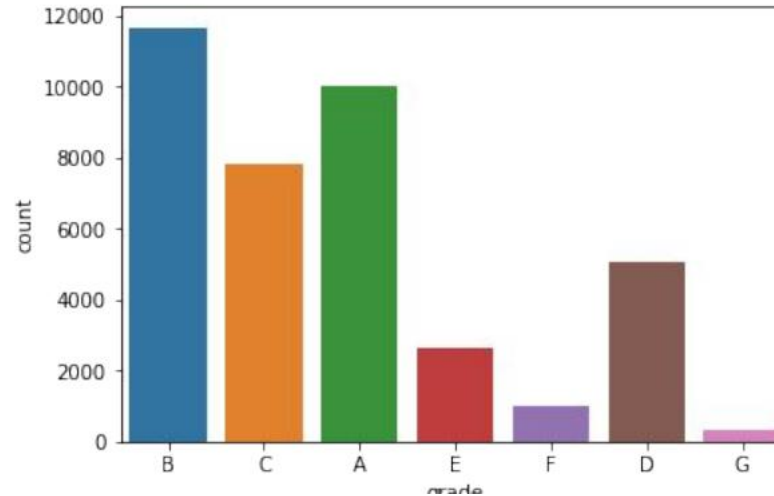
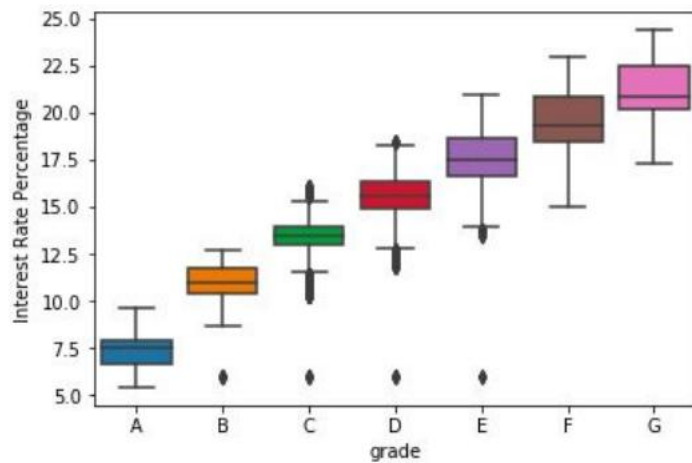
Loan Status Analysis



Inference:

1. The loan has been increasing exponentially over the years.
2. About 14% of loan are having status as defaulters.
3. Most of the loans are Fully Paid.

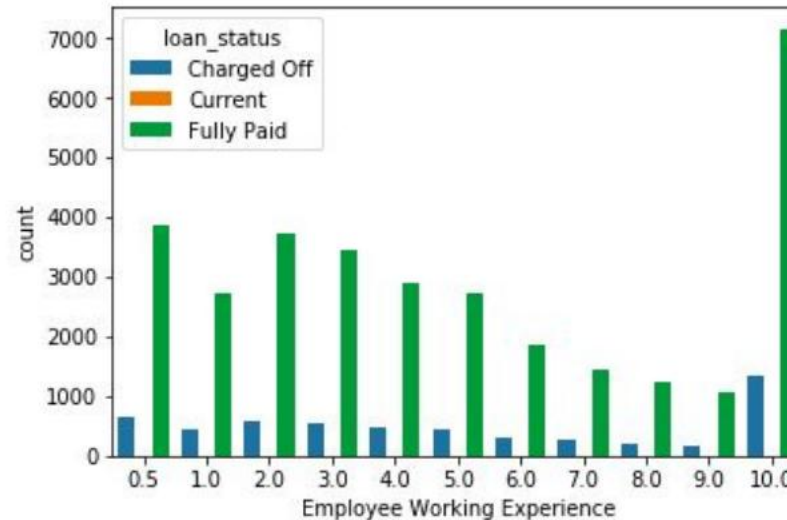
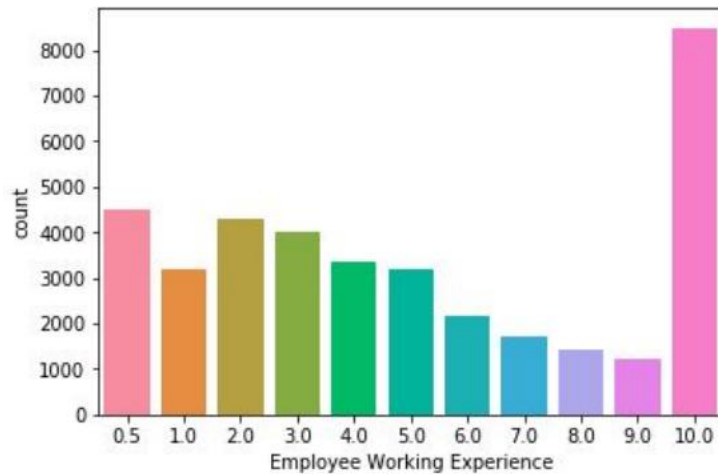
Loan Grade Analysis



Inference :

1. High Quality loans have low interest rate.
2. Which depicts, higher interest rate have higher tendency to default the loan.
3. Most of the loans have grade of A and B. Therefore stating most of the loans are high graded loans.

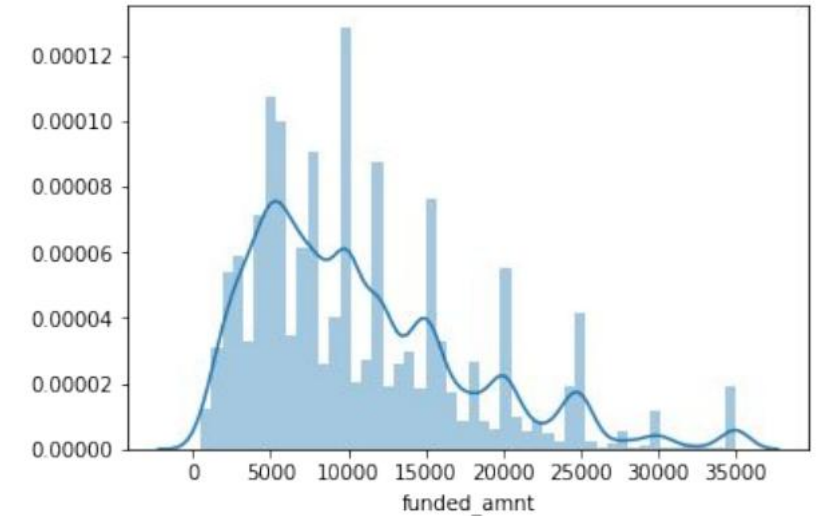
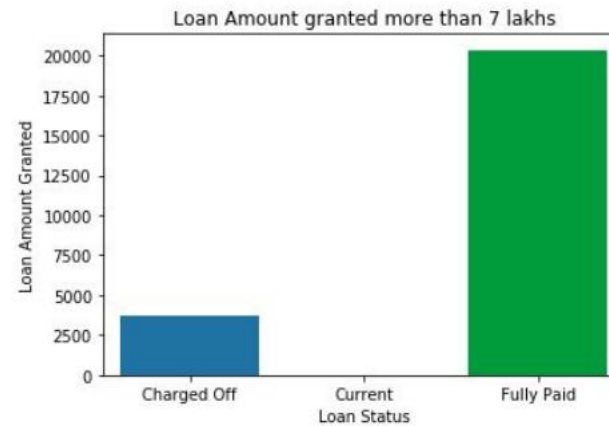
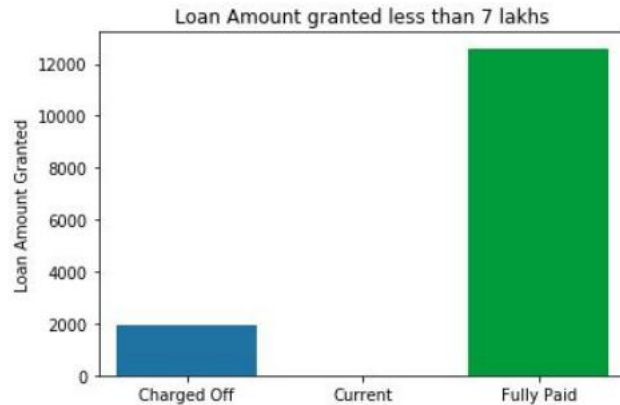
Loan Applicants work Experience Analysis



Inference :

1. Majority of employees applying for the loan have more than 10 years of experience
2. Tendency of person to default the loan with 10 years of experience is also high. So company need to be careful when granting loan.

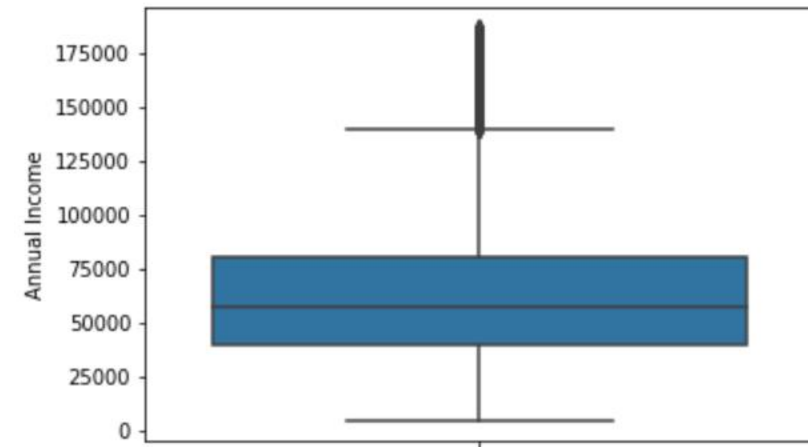
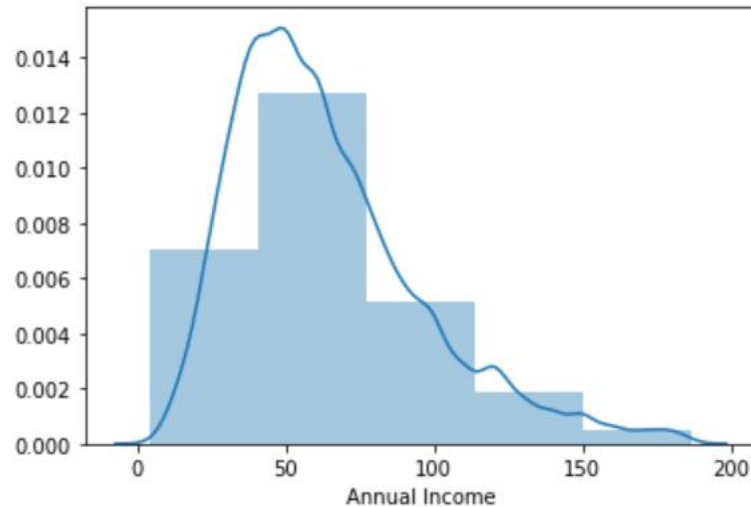
Loan Amount Analysis



Inference :

1. Funded amount is left skewed. Most of the loan amount given is below 7 lakhs.
2. Probability of people with loan amount greater than 7 lakhs tends to default is more than the people with less than 7 lakh

Income Analysis for the loan applicants



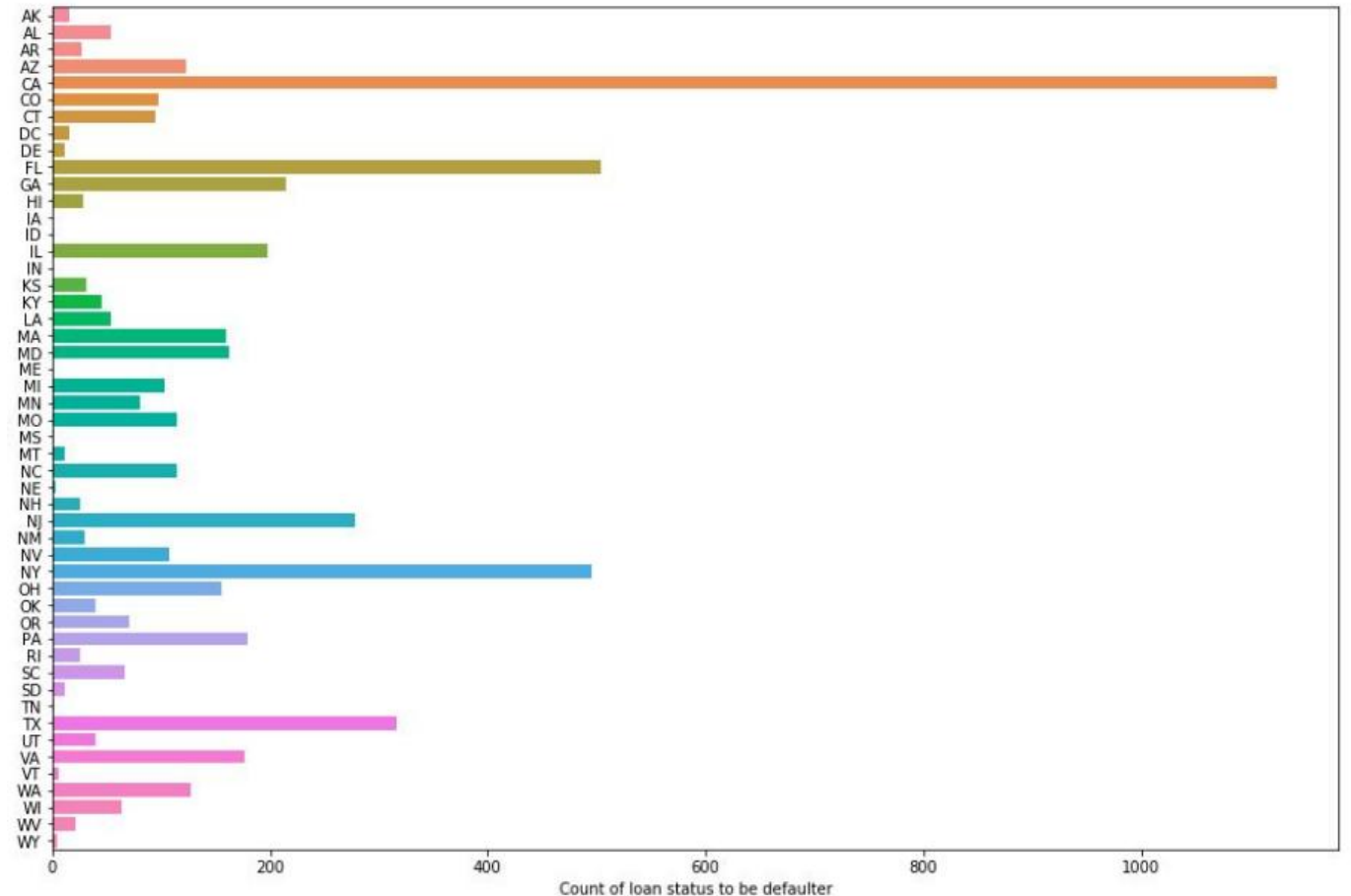
Inference :

1. Most of the applicants have income around 50 lakhs.
2. We have successfully removed the outliers.

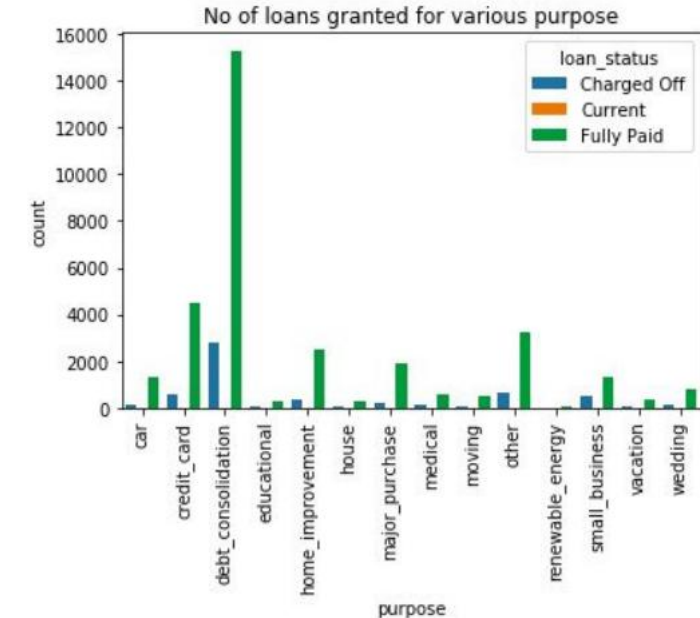
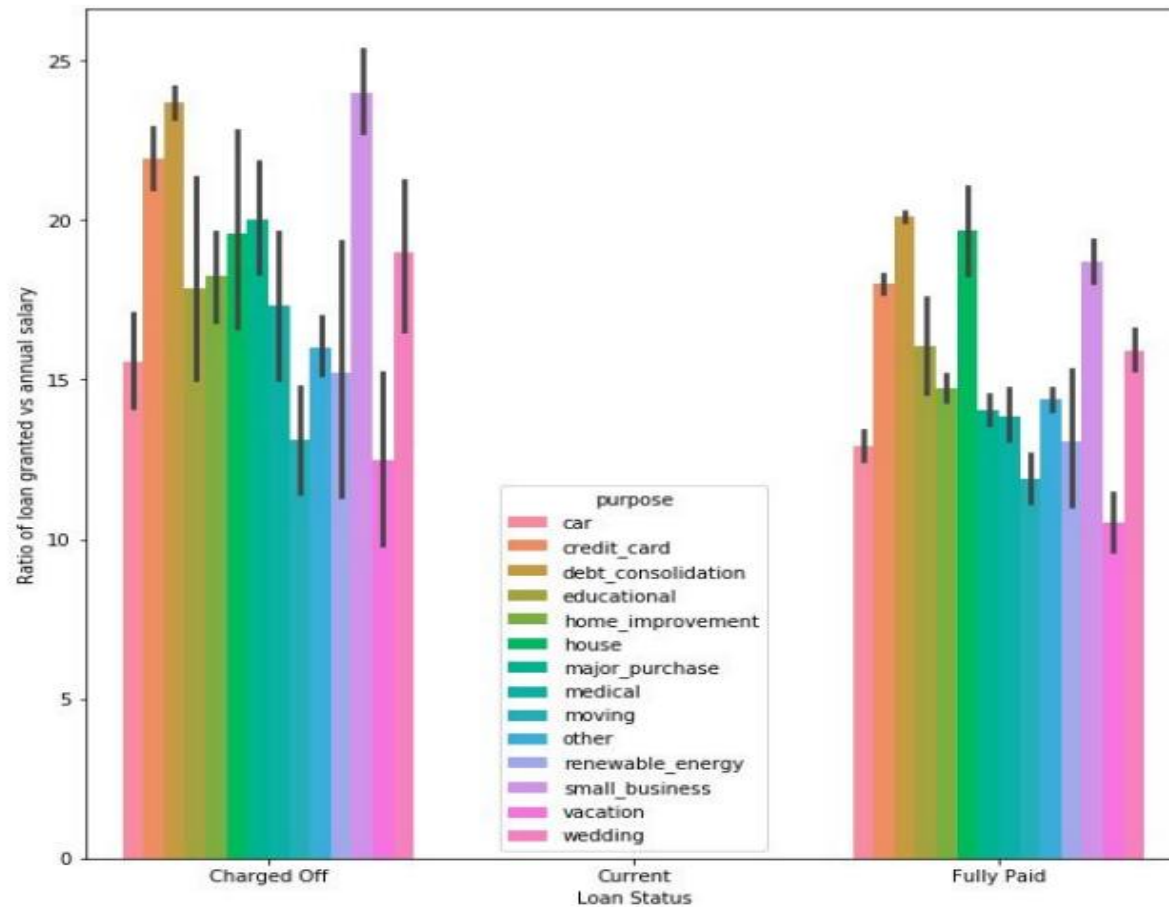
Loan Defaulters by State Analysis

Inference :

Applicants from state CA have high tendency to default the loan



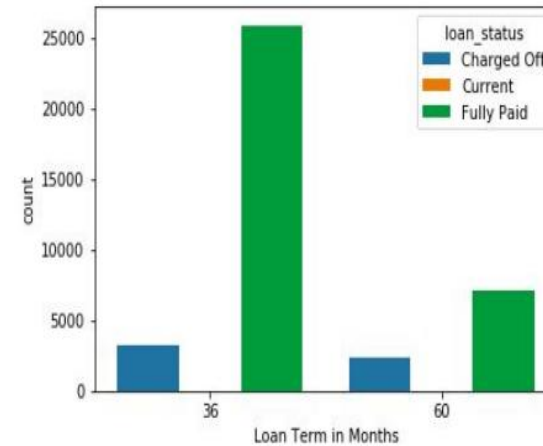
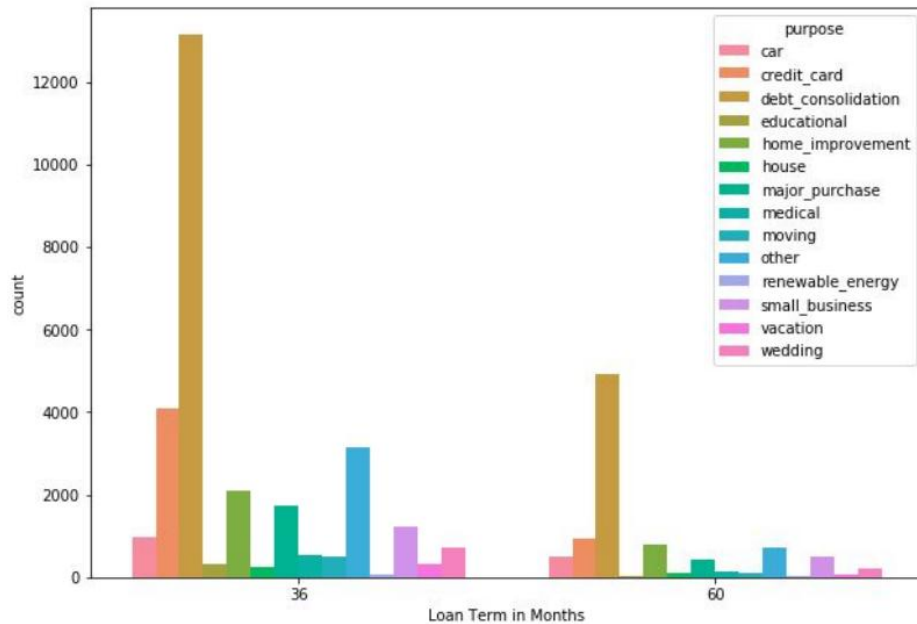
Purpose for applying Loan Analysis



Inference :

1. Most of the loans are granted were for debt consolidation.
2. Applicants having higher income tends to default the loan.

Loan Status vs Loan Tenure



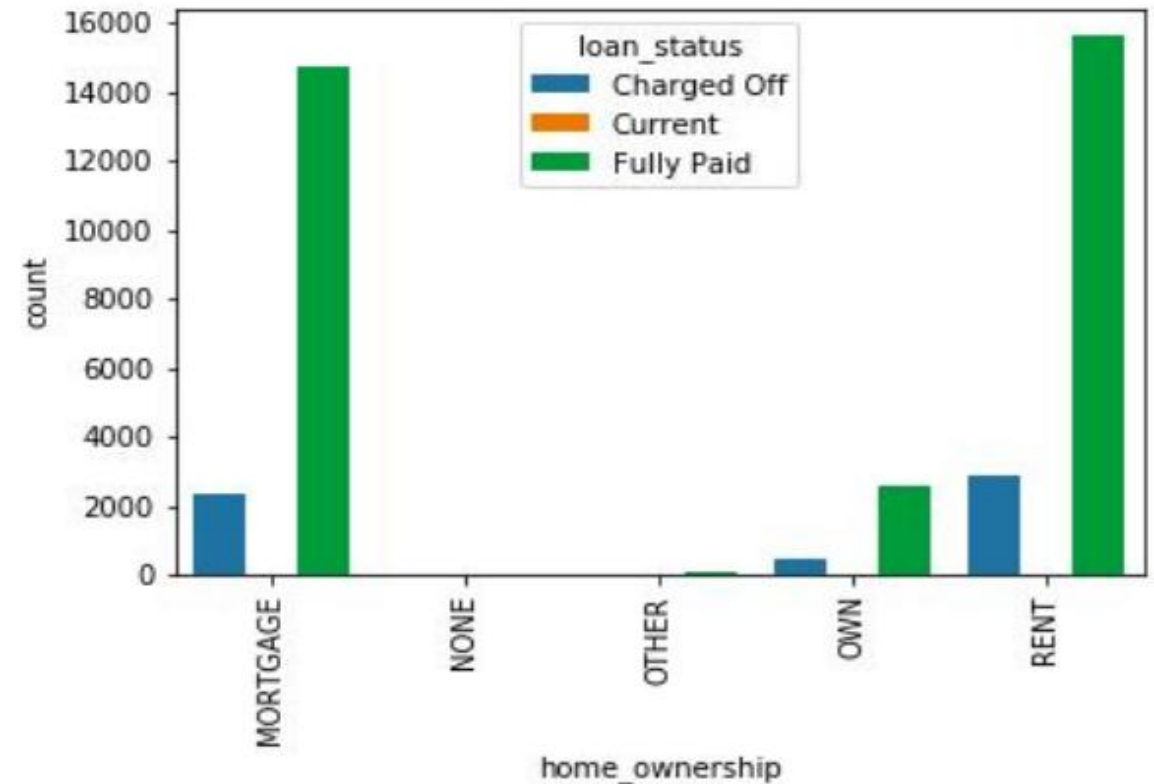
Inference :

1. Most of the loans granted were of 36 months.
2. And loans granted for 36 months have slightly high tendency to default.
3. Additionally, Debt Consolidation is the most common purpose and loans are granted for 36 months and 60 months.

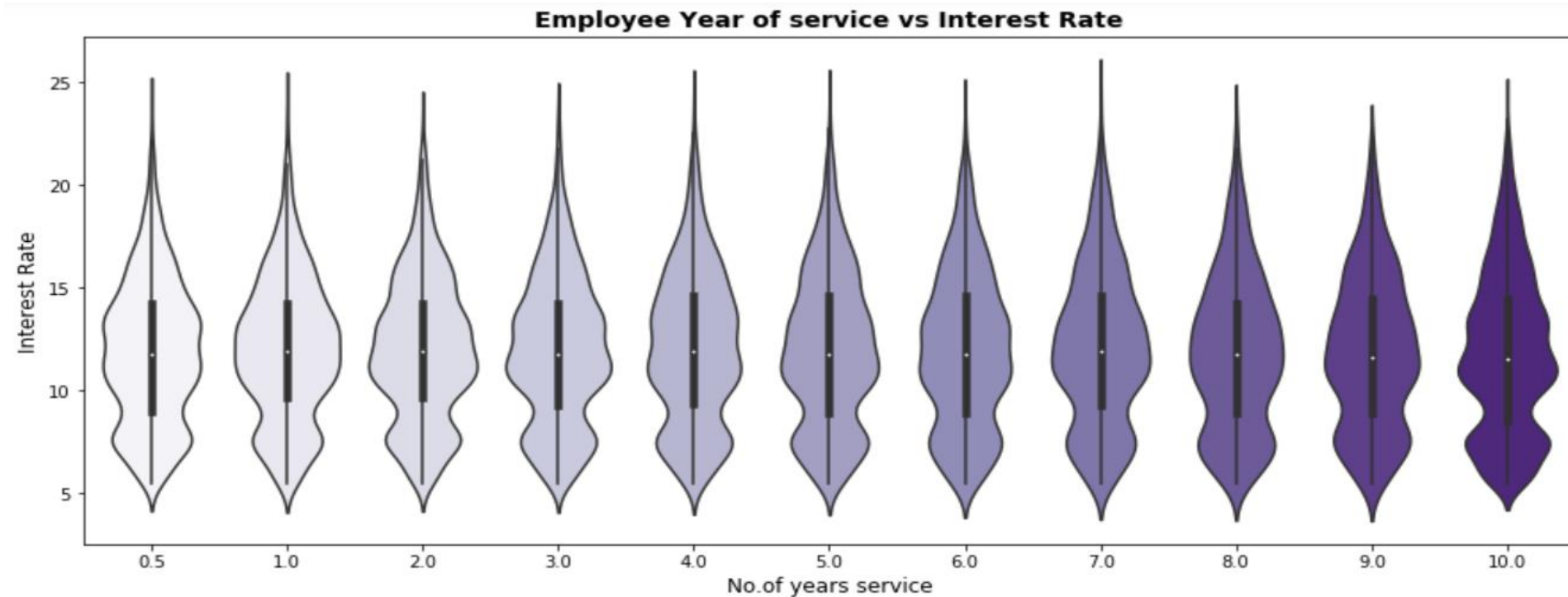
Loan Status by Home Ownership

Inference :

Applicants having there home rented or on mortgage have almost equal tendency to default the loan.



Employee Year of Service vs Interest Rate



Inference :

1. Range of interest for applicant's years of service tells low range remains constant irrespective of years of service.
2. Maximum Interest rate is found for applicant having 7 years of service.
3. 50% of applicant who has 10 years of experience has interest rate between 11.5 to 12.5
4. Maximum number of applicants have higher interest rate falling under 10 years of experience.

Conclusion

Results

- Grading system is working as expected & low grade loans have high tendency to default.
- Check the background of applicant thoroughly if interest rate is high since loans having higher interest rate have more defaulters.
- As tendency to default is high, extra scrutiny must be done for the applicants belonging to CA state
- When the purpose is debt consolidation check applicant thoroughly as it has high tendency to default.