SUBMISSION

Project by:

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Behind Case Study:

- Lending Club (LC) is the world's largest peer-to-peer lending company, headquartered in San Francisco, California
- It was the first peer-to-peer lender to register its offerings as securities with the Securities and Exchange Commission (SEC), and to offer loan trading on a secondary market.

Process:

- Customers interested in a loan complete a simple application at LendingClub.com.
- Lending Club leverages data and technology to screen borrowers, facilitate the transaction with appropriate interest rates, and service the loan.
- Qualified applicants receive loan offers and can evaluate their options with no impact to their credit score.
- Investors select the loans they want to invest in based on their own risk tolerance, investment portfolio goals, and time horizon.

Objective :

- Identify variables that provide strong indicators of potential loan default thus helping Lending club to decide approval/rejection of loan.

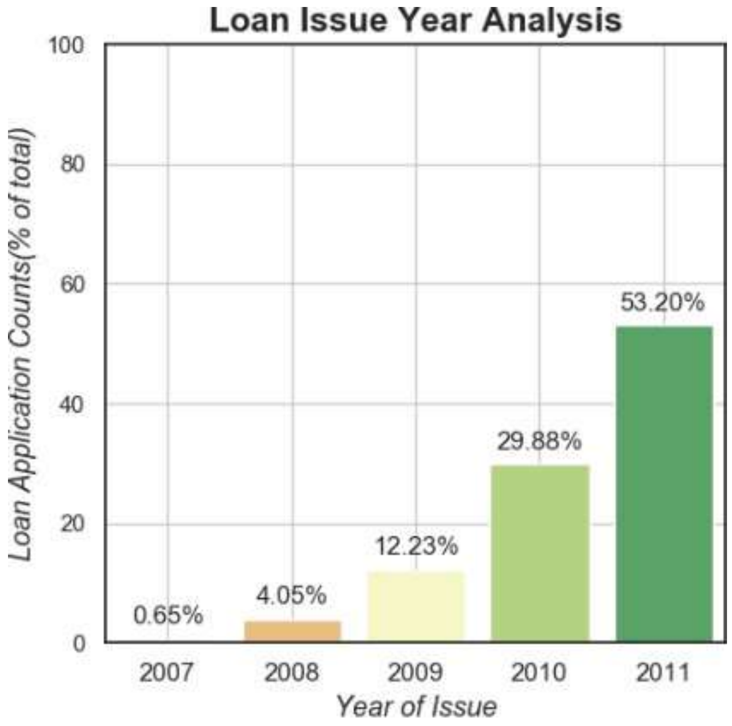
Univariate Analysis: Insights

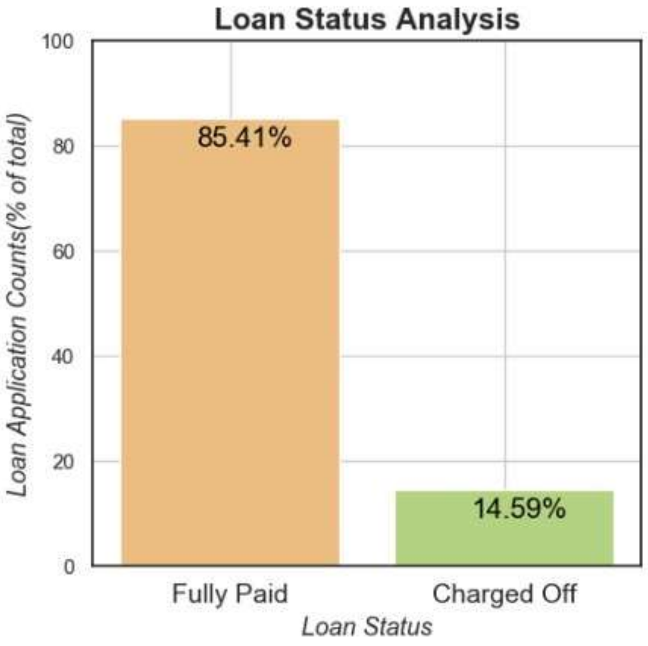
- Overall Default Rate stands at 14.59%.

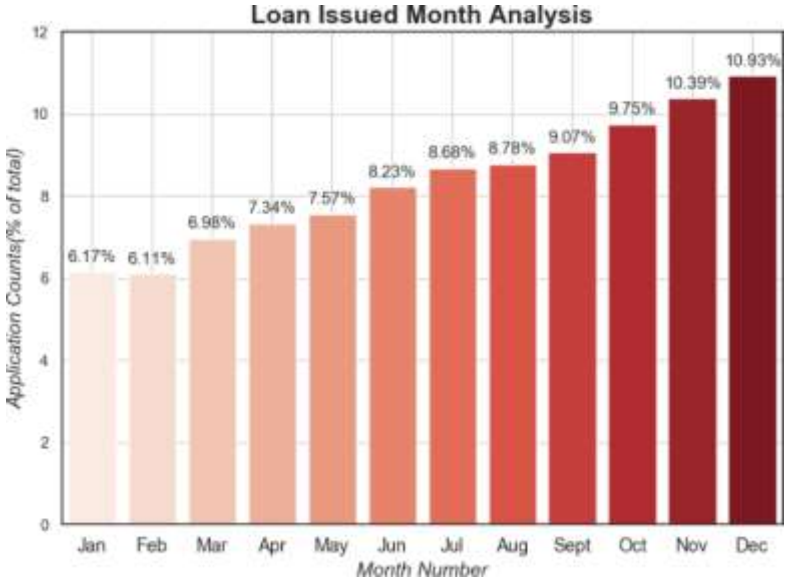
- Approval rate of loans jumped by around 78% from the year 2010 to 2011.

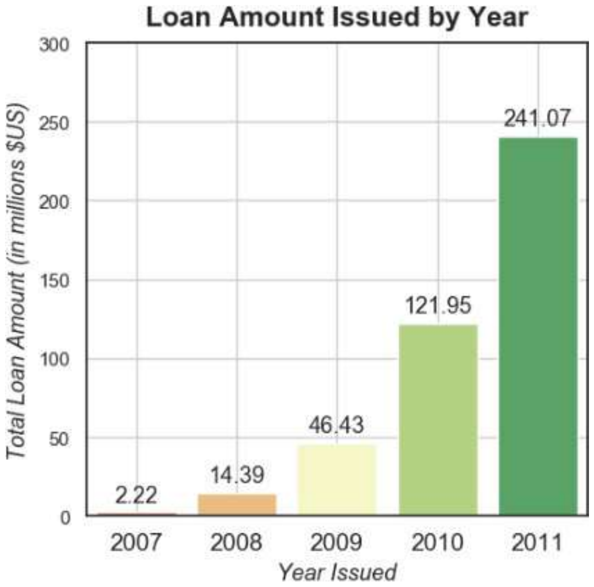
- Approval Rate of loans is higher during the Holiday Season (November & December).

- Approved Loan amount almost doubled between years’ 2010 and 2011.

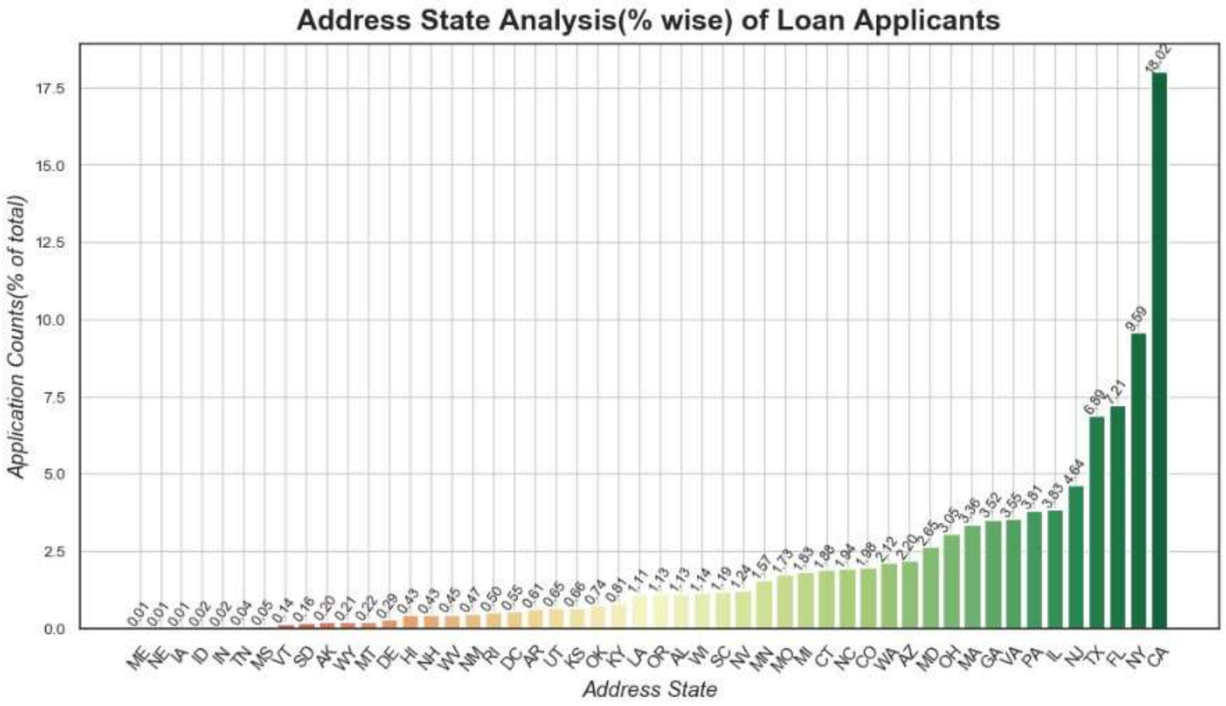


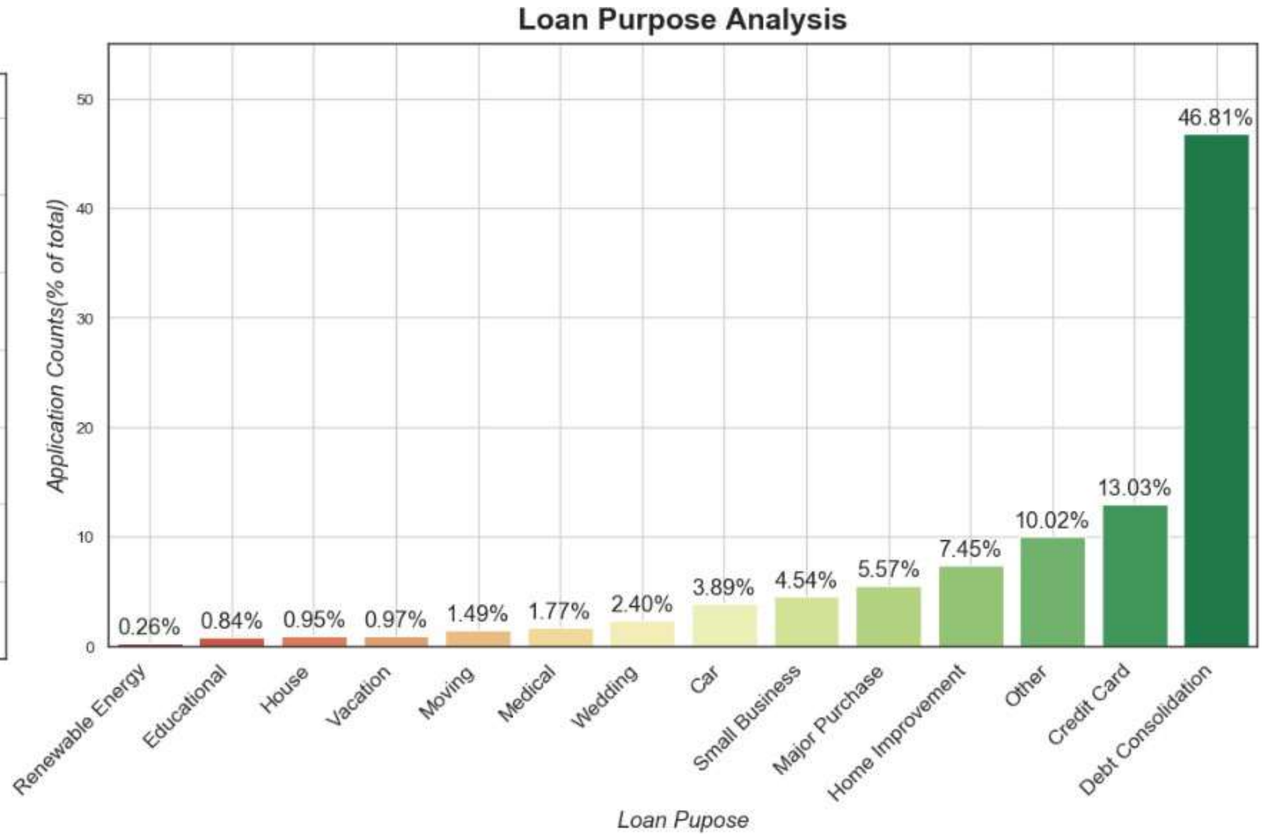






Univariate Analysis: Insights





- **'Debt Consolidation' followed by 'Credit card', are the top two reasons for loan applications amongst approved loans.**

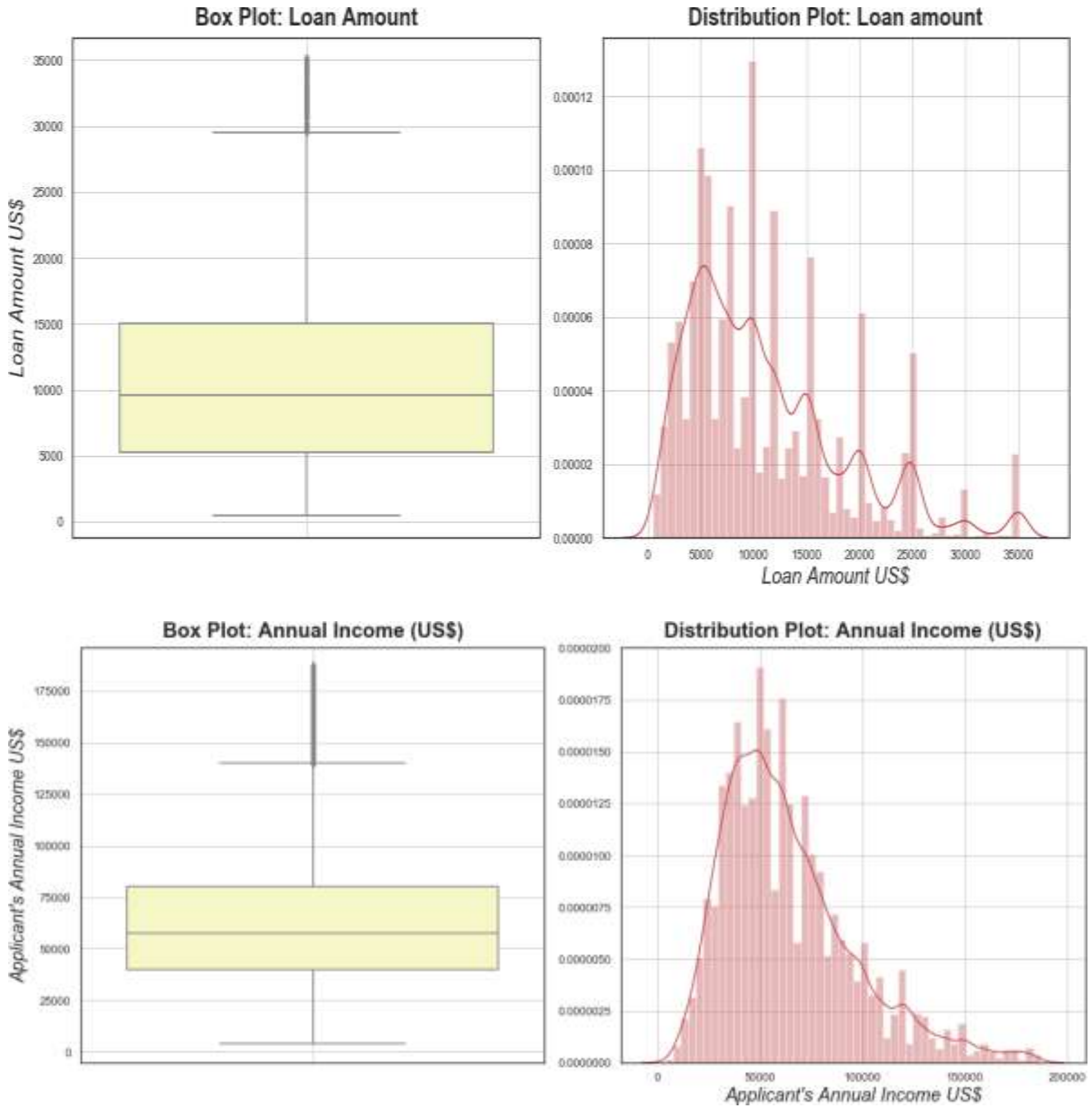
- **California has more than twice as many approved applicants as compared to any other state**

Univariate Analysis: Insights

- 50% of loan applicants request a loan amount between 5.3K USD and 15K USD.

- Annual Income was highly skewed as expected; ignoring the outliers,
  the average salary of applicants is 68.78K USD.

- 50% of the applicants earn between 40K USD and 82K USD annually



Bivariate Analysis

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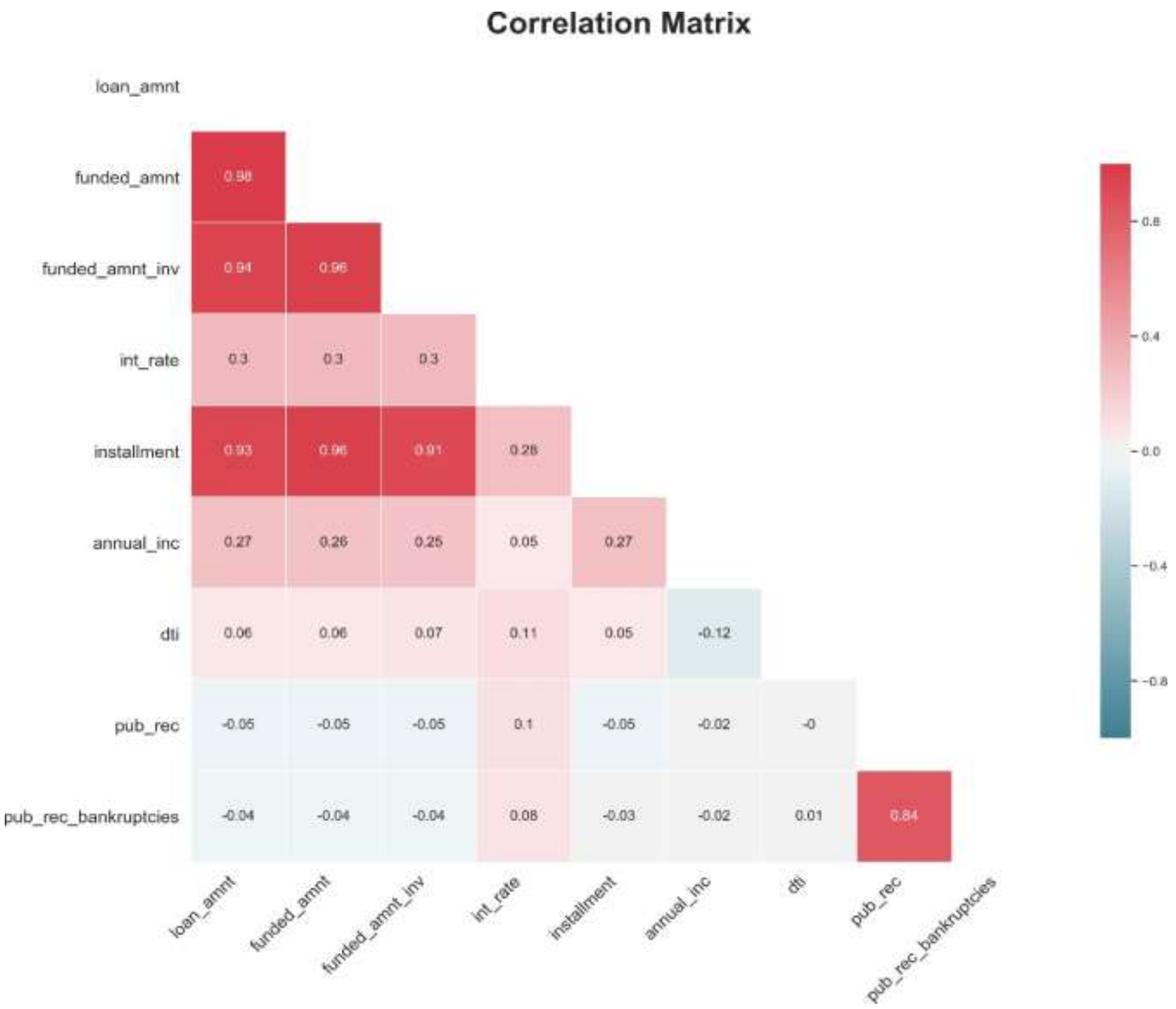


- **Pearson Correlation plot between numeric/continuous variables retained**
- **Numbers are indicative of the strength of correlation between variables**

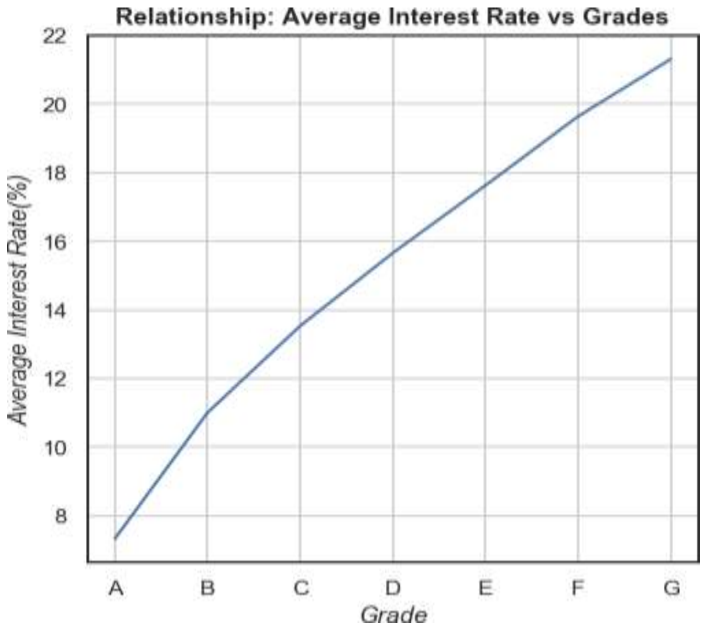
Bivariate Analysis

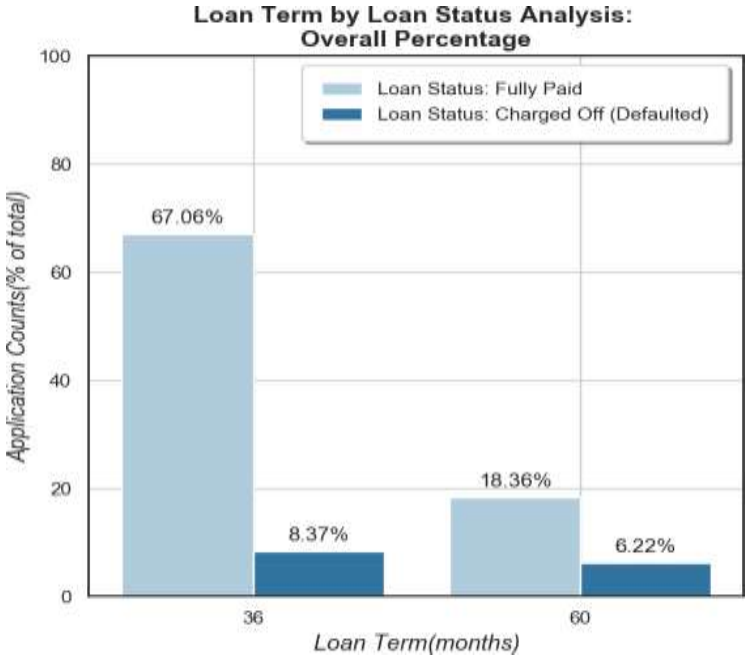
- Average Interest rates increase as the risk associated with the applicants increase, which can be denoted by the grades assigned to applications. It is an effective process to follow.

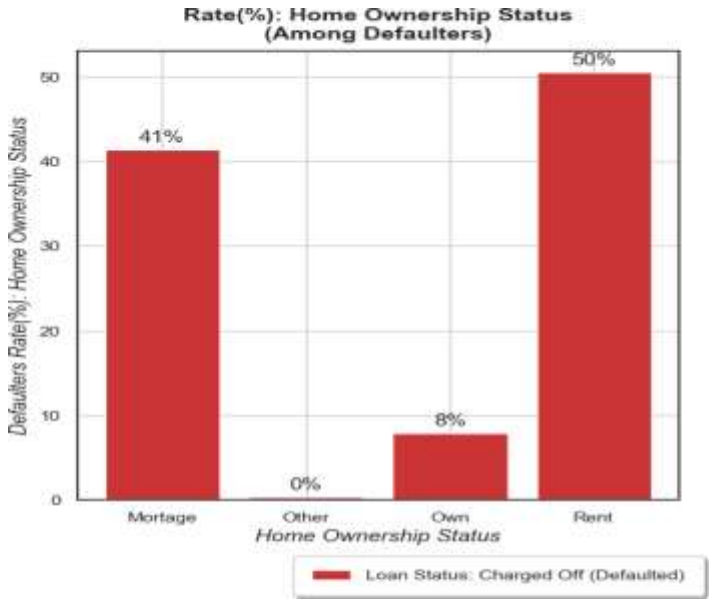
- Loan approved for 36 months seems to have a greater % of defaulters as compared to loans approved for 60 months term.

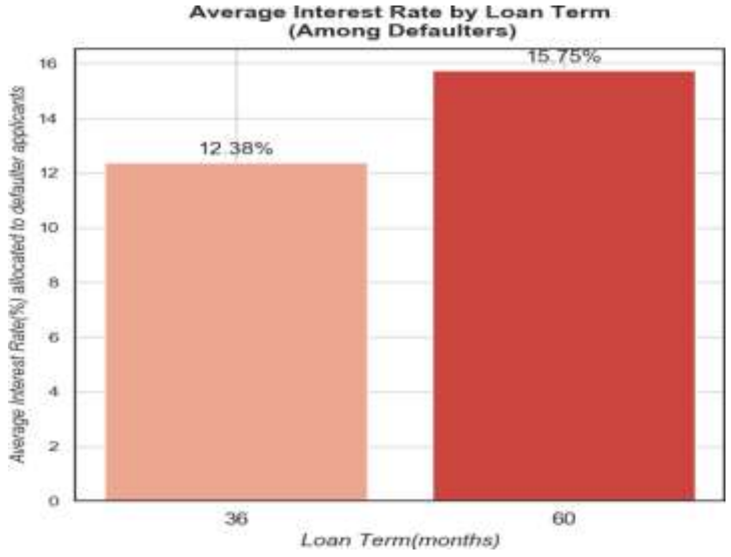
- 91 % of the defaulters already have a mortgage taken out or live on rent.

- Average Interest rate for defaulted applications is very high with 12.38 % for 36 months and 15.75 % for 60 months term.

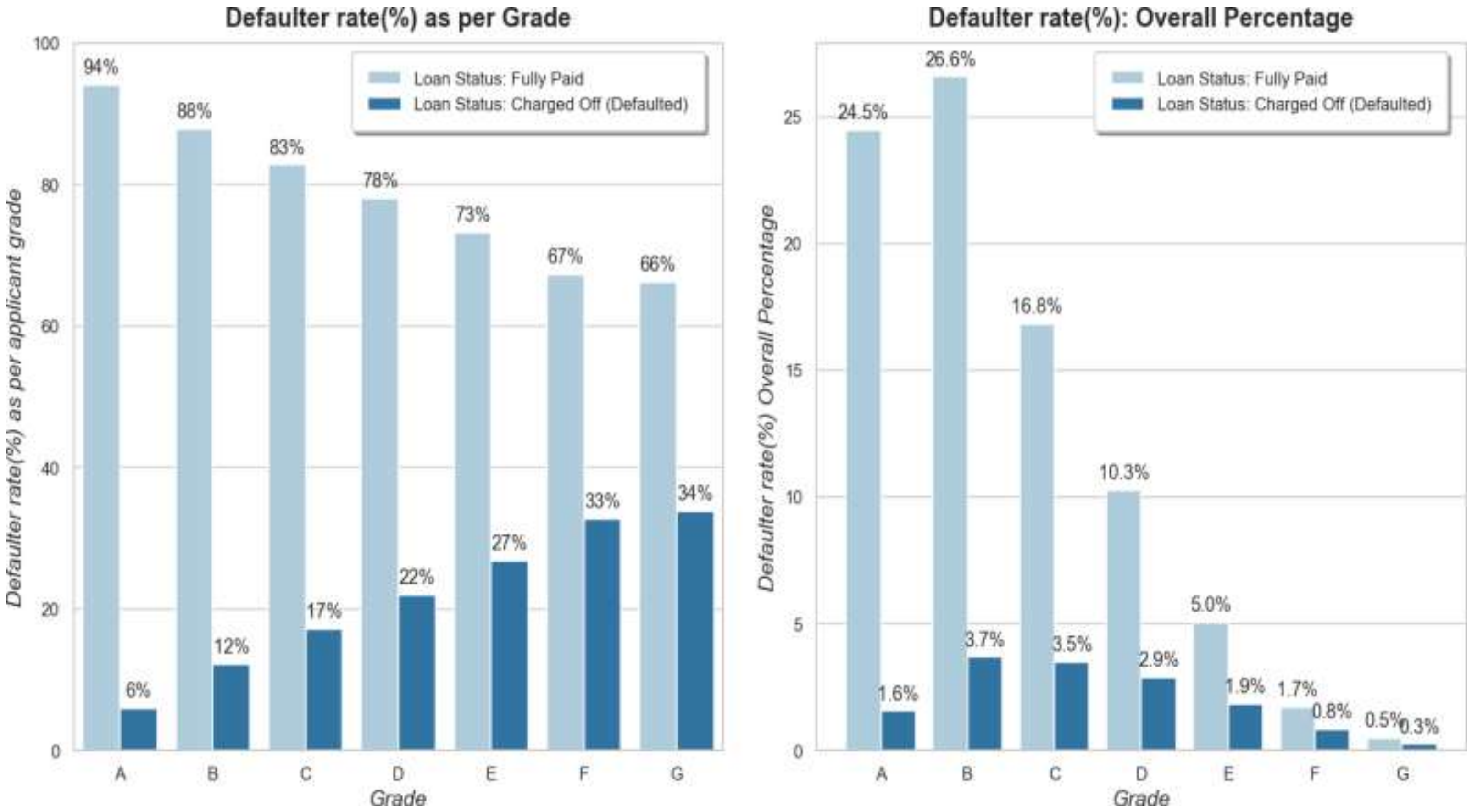








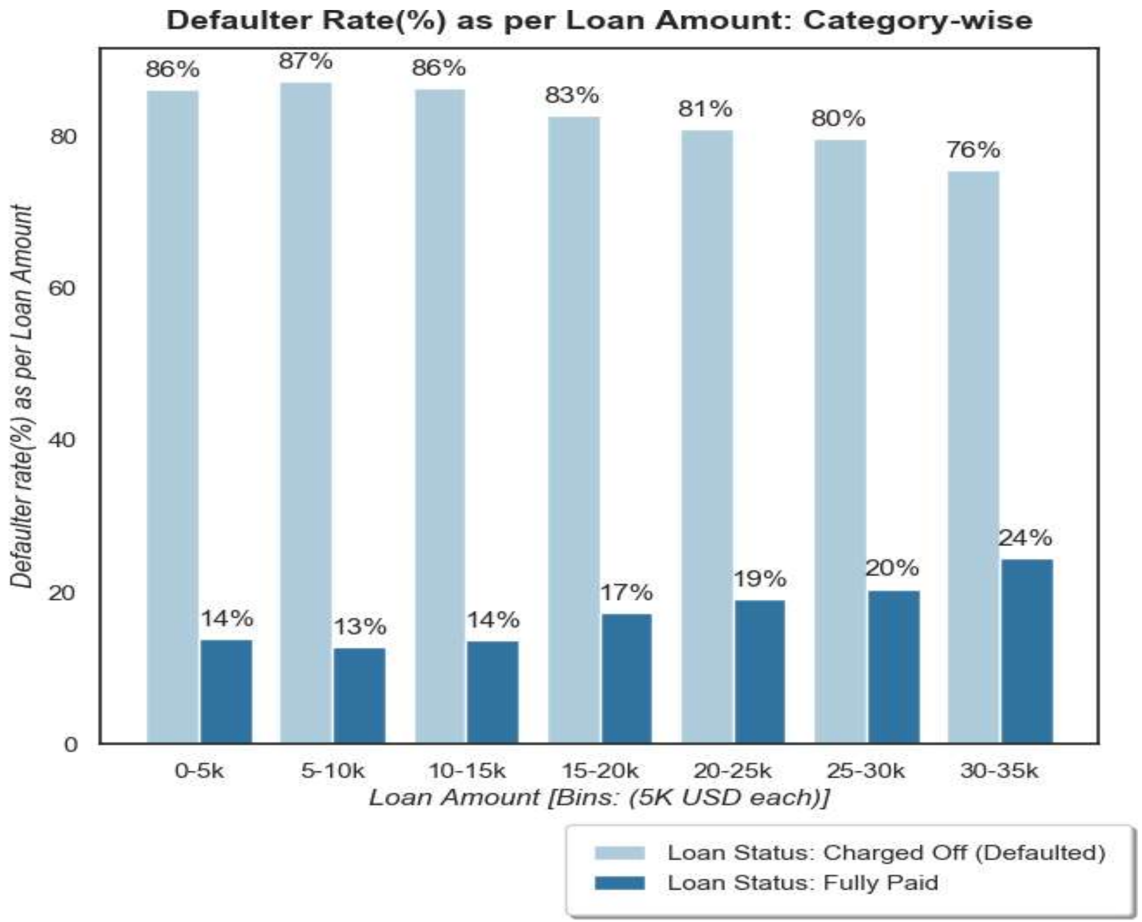
Bivariate Analysis: Grade Vs Loan Status

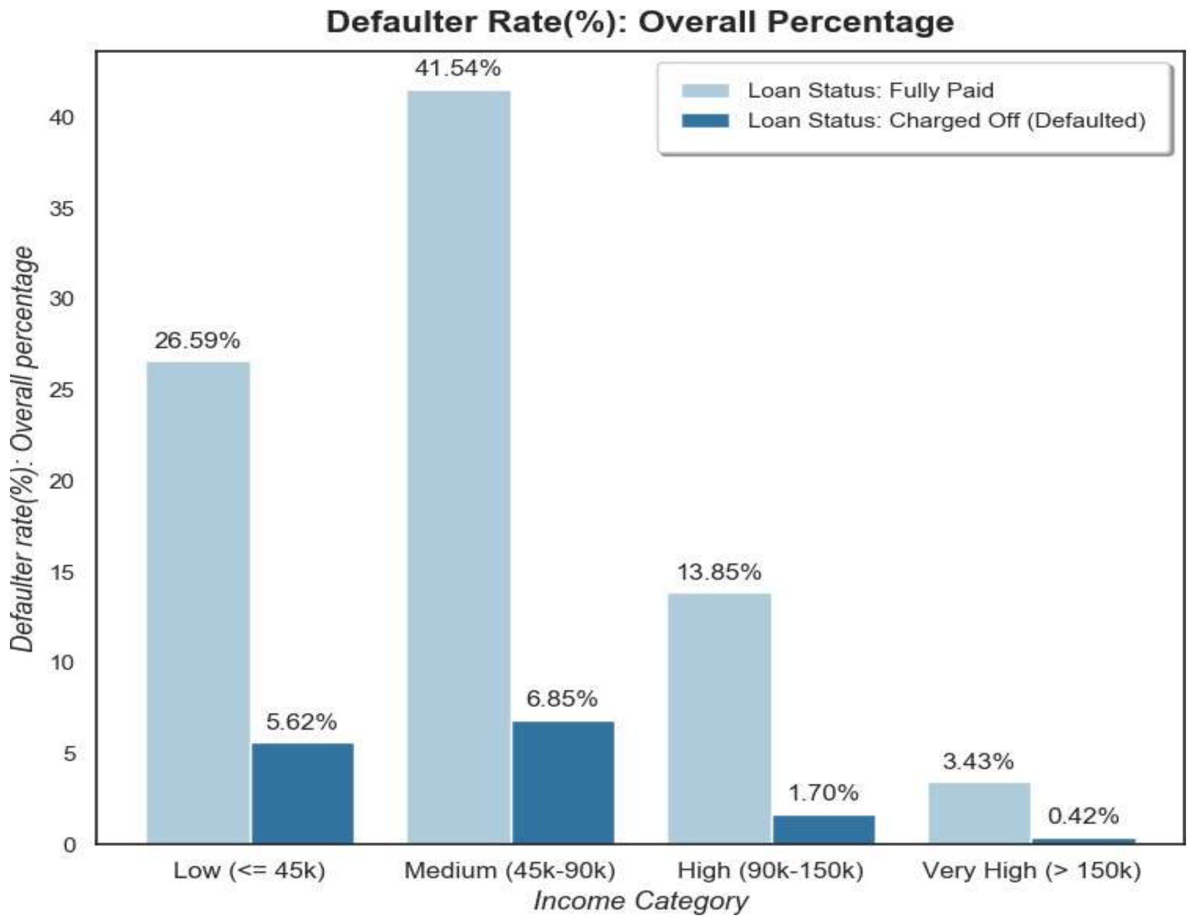


- **Percentage of defaulters is significantly high within the grade categories, 'F' and 'G'. LC should be more vigilant while approving loan applications for high risk applicants.**

- **Largest Proportion of approved loan defaulters belong to Grade 'B'(3.7%) and 'C'(3.5%) category.**

Bivariate Analysis: Loan Status Vs Loan Amount & Income

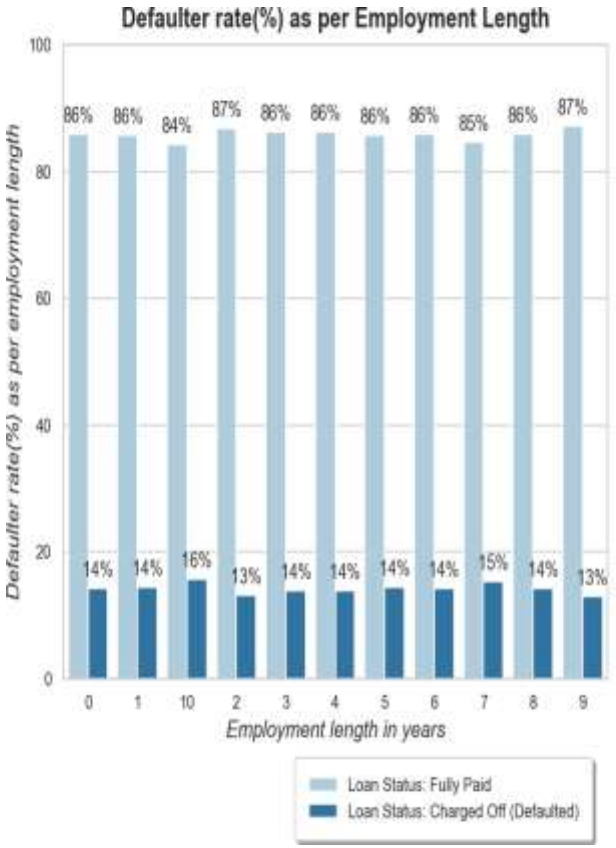


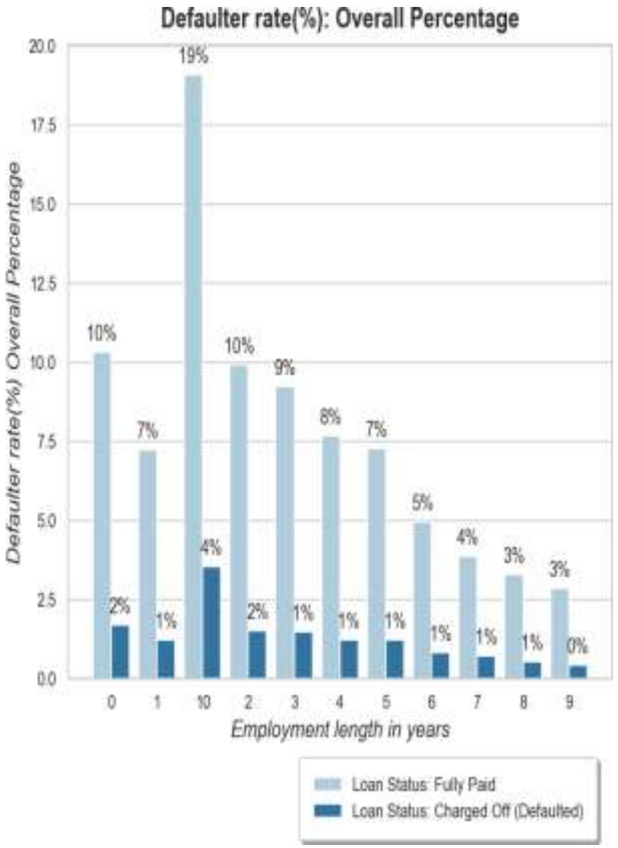


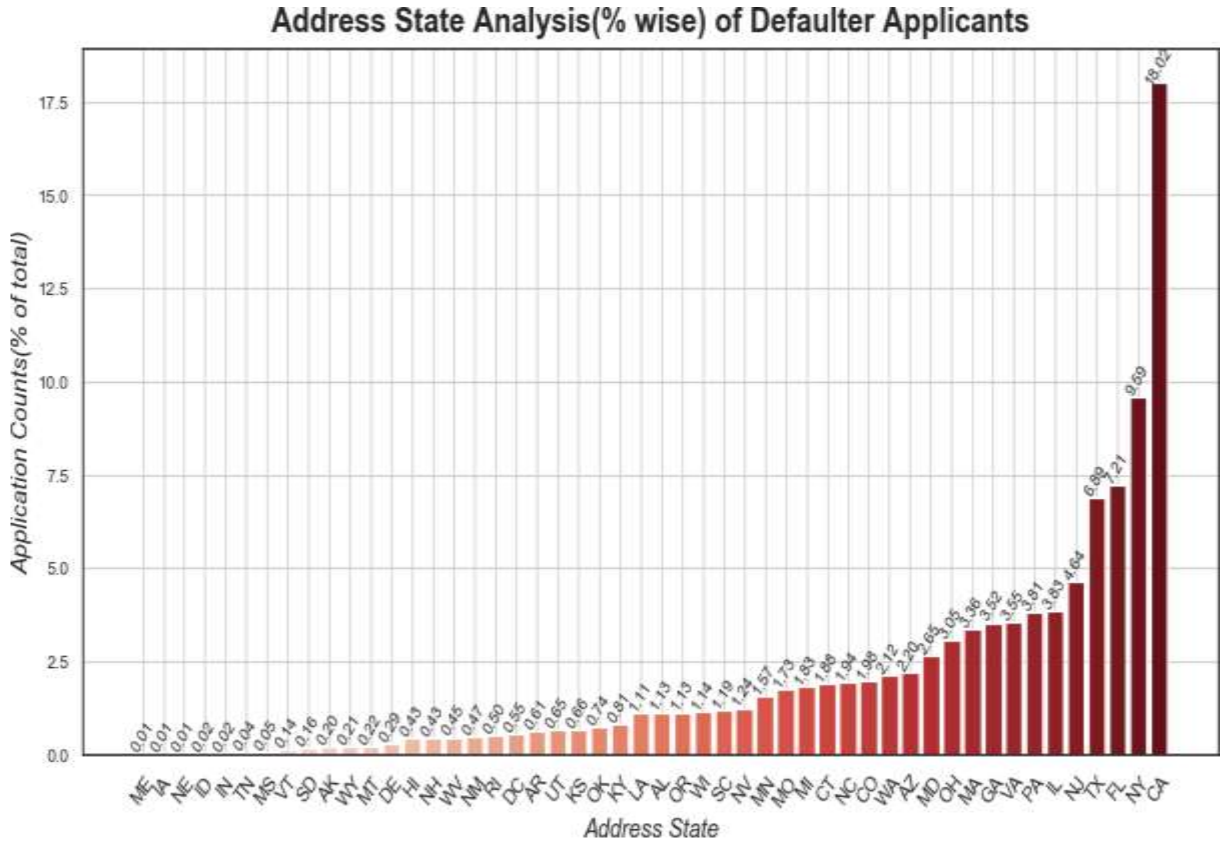
- Binning of Requested Loan amount clearly shows that 'defaulter rate' increases as the requested loan amount increases

- Loan applicants from 'Low'(<=45K USD) and 'Medium'(45K-90K USD) income group have a greater share of defaulted loans

Bivariate Analysis: Loan Status Vs Grade & State







- Maximum percentage of defaulters are found in the 10 years (4%) employment year category. After it, we see applicants with less years of experience i.e. around 0 to 2 years, following the trend.

- An interesting insight shows that almost 41% of defaulters hail from just 4 states namely California, New York , Florida and Texas.

Conclusion:

Driving Factors (driver variables):

- **Loan Term :-** Average Interest rate for defaulted applications is very high with 12.38 % for 36 months and 15.75 % for 60 months term.
- **Grade :-** Default Rate is high in high risk loan applicants. It would be important for LC to thoroughly vet high risk loan applications.
- **Loan Amount :-** Defaulter rate increases as the requested loan amount increases.
- **Annual Income :-** Applicants from 'Low'(<=45K USD) and 'Medium'(45K-90K USD) income group have a greater share of defaulted loans.
- **Employment Length :** Maximum number of defaulters have 10/10+ years of experience and 0 to 2 years of experience. Hence, LC should be taken this aspect into consideration while lending loans.
- **Loan Purpose :-** The top two reasons for loans are debt consolidation and credit card. Such applications should be carefully assessed.