

# Lending club Case Study

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# Agenda

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- Objective
- Analyse of loan data
- Cleaning of data
- Identify Key features
- Univariate & Bivariate analysis
- Derived Metrics
- Data Visualisation
- Conclusion

# Approach

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- Data Cleaning & Manipulation Checklist
- Dropping Rows - where loan\_status = "Current"
- Dropping Columns based on EDA and Domain Knowledge
- Convert the data types
- Identify columns with blank values which need to be imputed
- Analysis of the dataset post cleanup
- Outlier Treatment
- Analysis - Univariate, Bivariate and Derived Metrics Analysis
- Conclusions Inferences and Recommendations

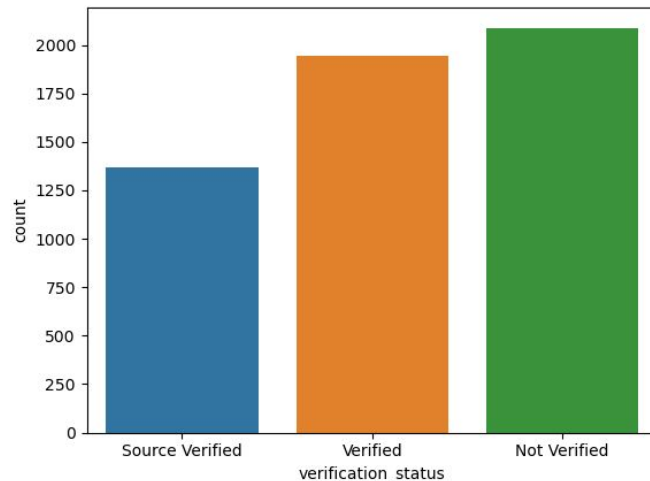
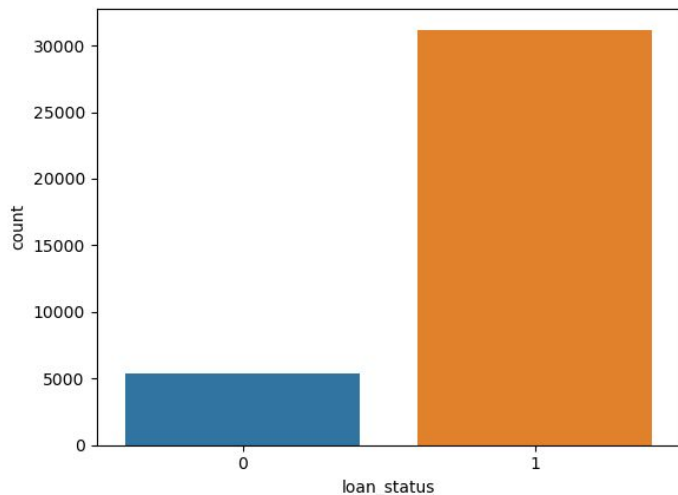
# Loan Status and Applicant Verification

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0: Charged Off

1: Fully Paid

- Loan Charged off are much lesser in comparison to fully paid.
- Applicant who's background is not verified pays loan successfully.



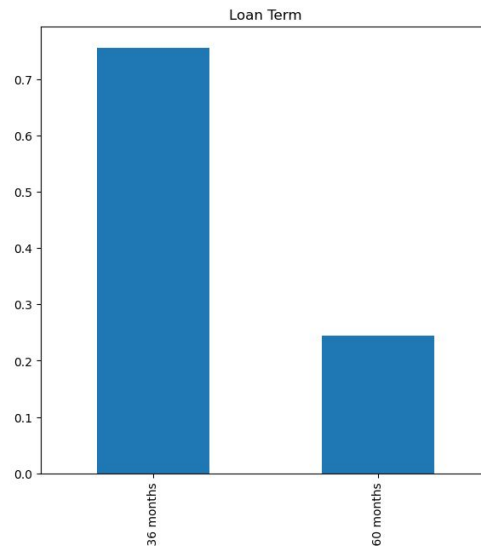
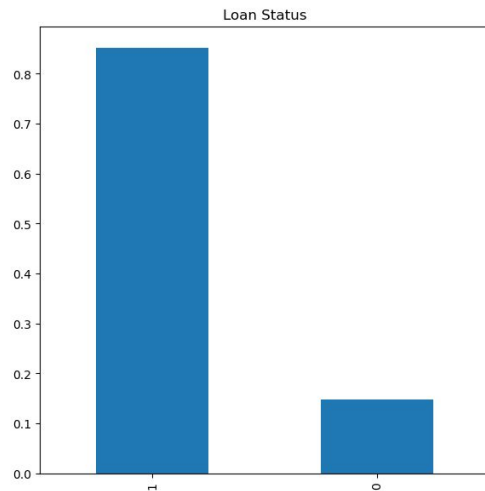
# Loan Status & Loan Term Period

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0: Charged Off

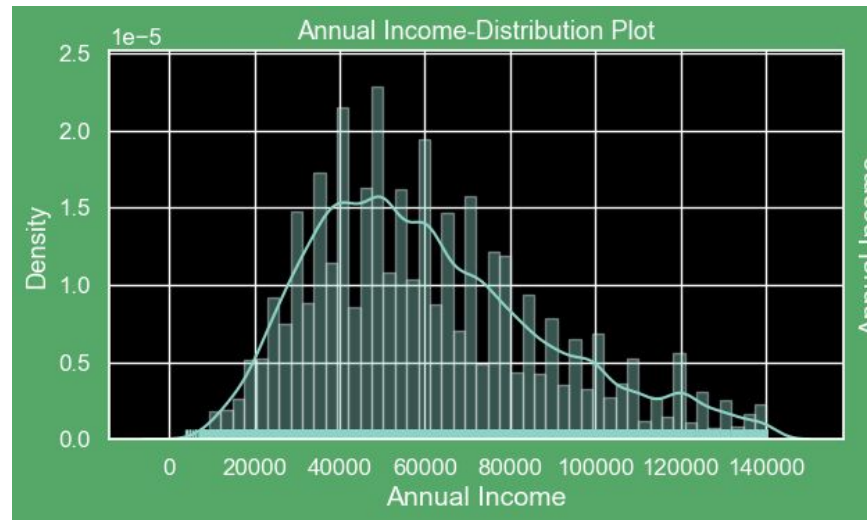
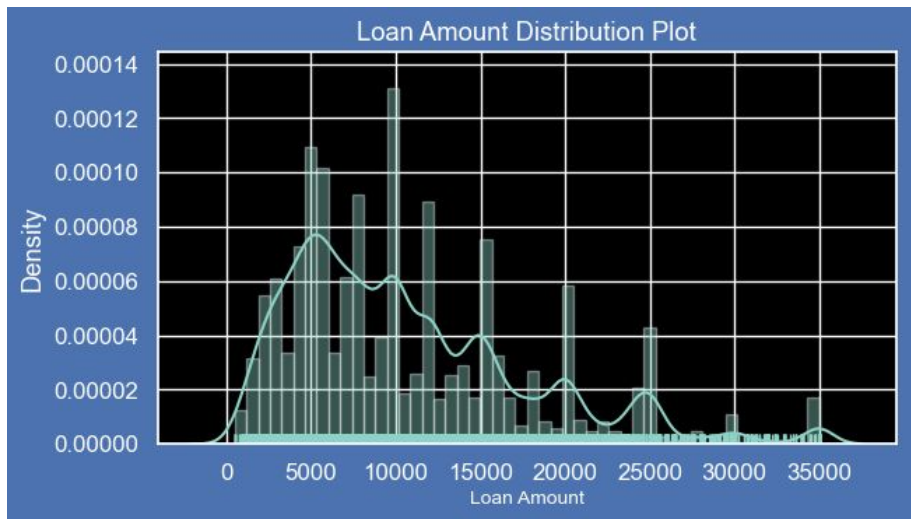
1: Fully Paid

- Here conclusion is those taking for shorter duration clears the loan successfully in comparison for longer duration loan.



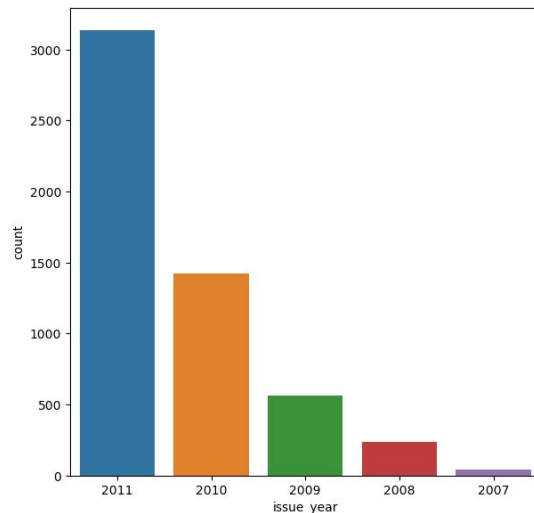
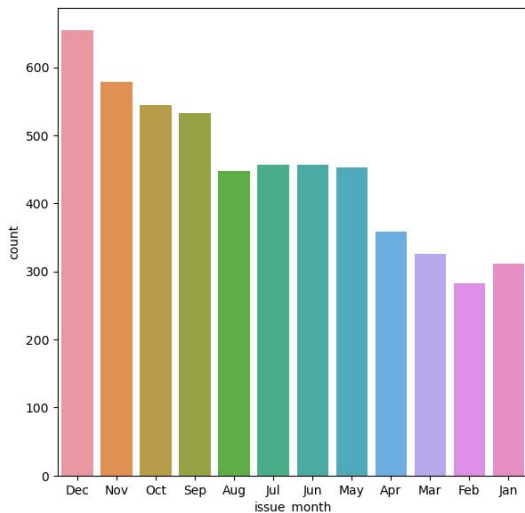
# Loan Amount Distribution

- Most of the loan amount are given in range of 5K-10K
- Most of the loan amount are given to people who are having income between 40K - 80K



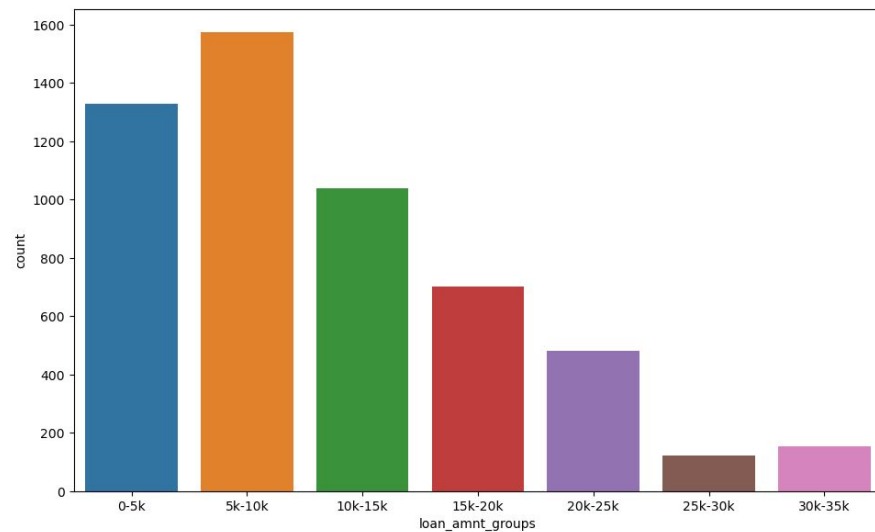
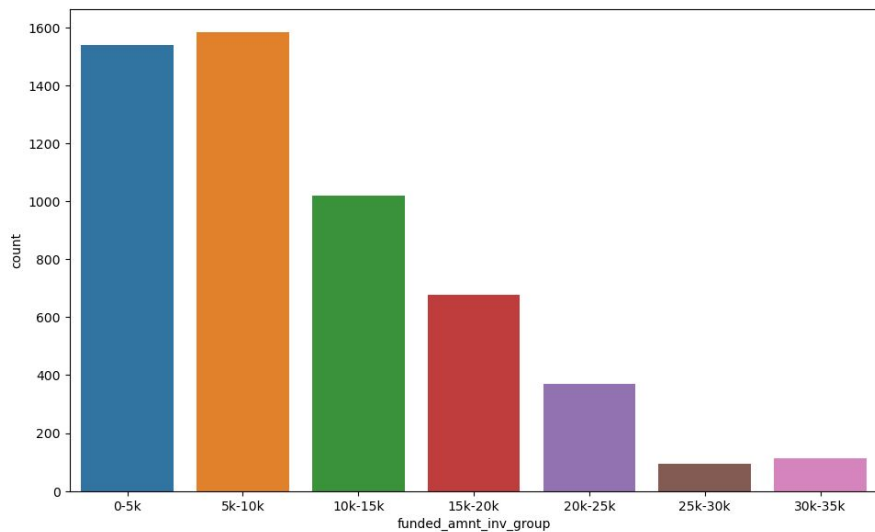
# Analyzing Derived Columns

- From 2007 till 2011 we can see the spike in loan application.
- Another observation we can see is in Jan/Feb/March there are low application count



# Amount committed by investors & Loan Amount Group

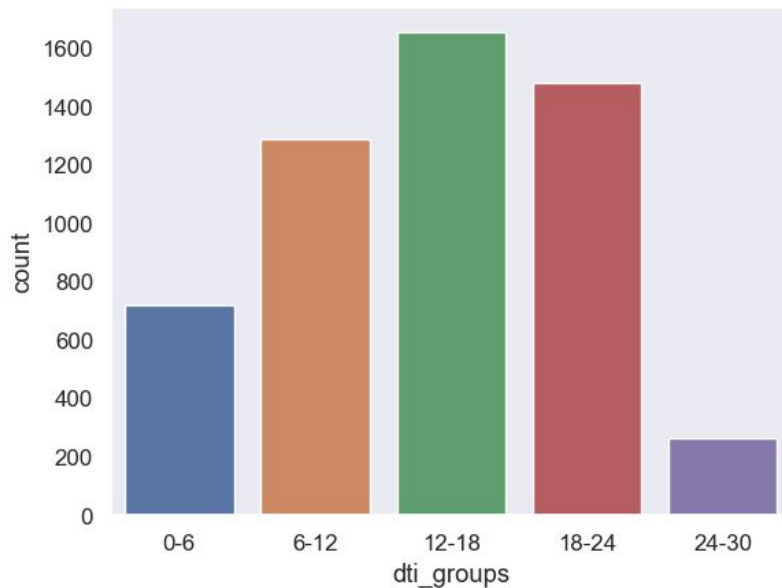
- The funded amount by the investor and loan amount given are having maximum in group of 5-10K





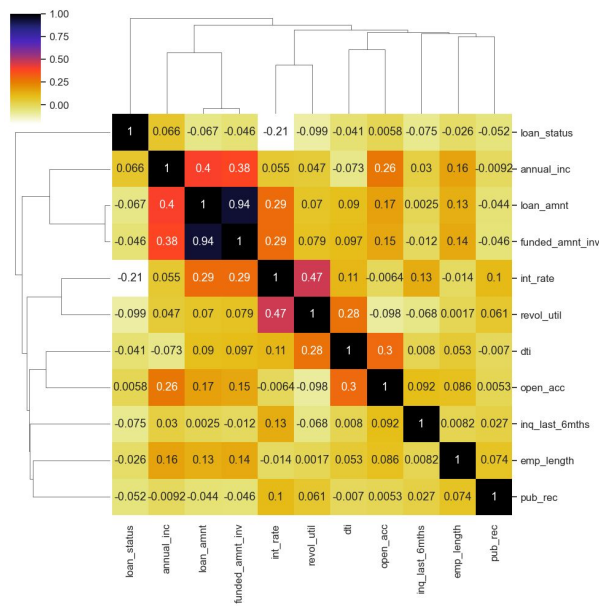
# Debt To Income Ratio

- Most loan applications have moderate debt to income ratios.



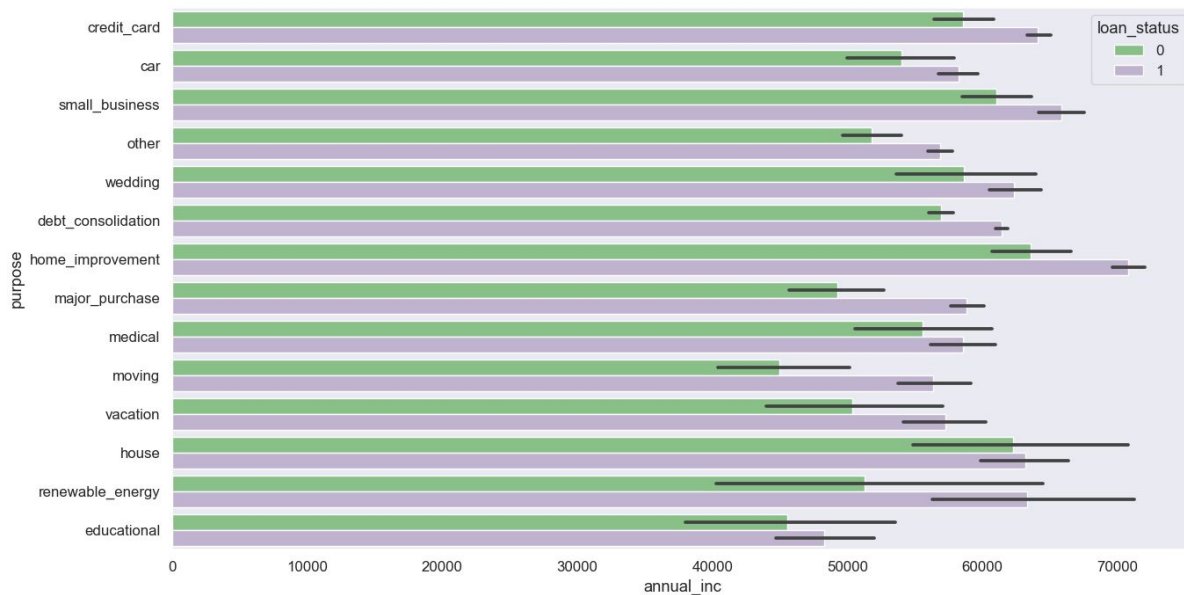
# Correlation Analysis

- Annual Income to dti Ratio are negatively correlated
- Loan Amount, Investor Amount and Funding Amount are strongly correlated
- Positive correlation between Annual Income and Employment Length



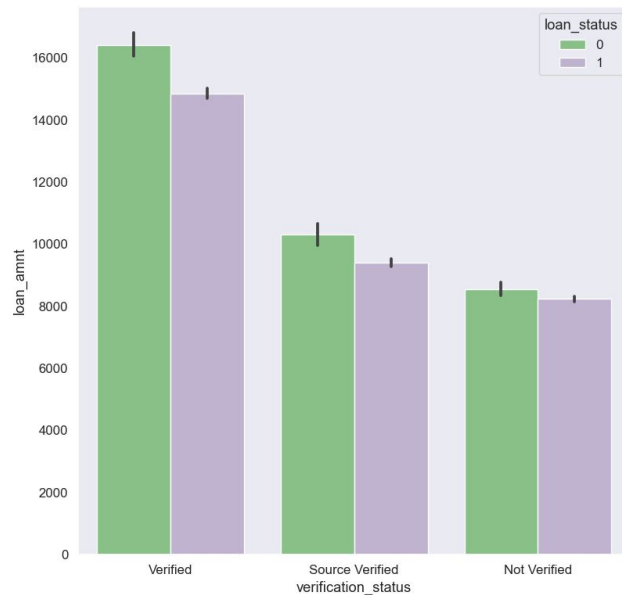
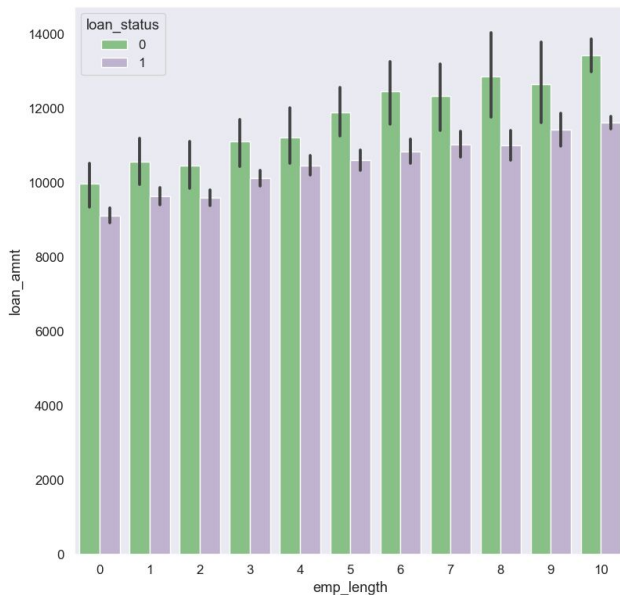
# Comparing Annual Income & Loan Purpose

- Applicants with higher incomes were more likely to apply for loans for "home\_improvement," "house," "renewable\_energy," and "small\_businesses."



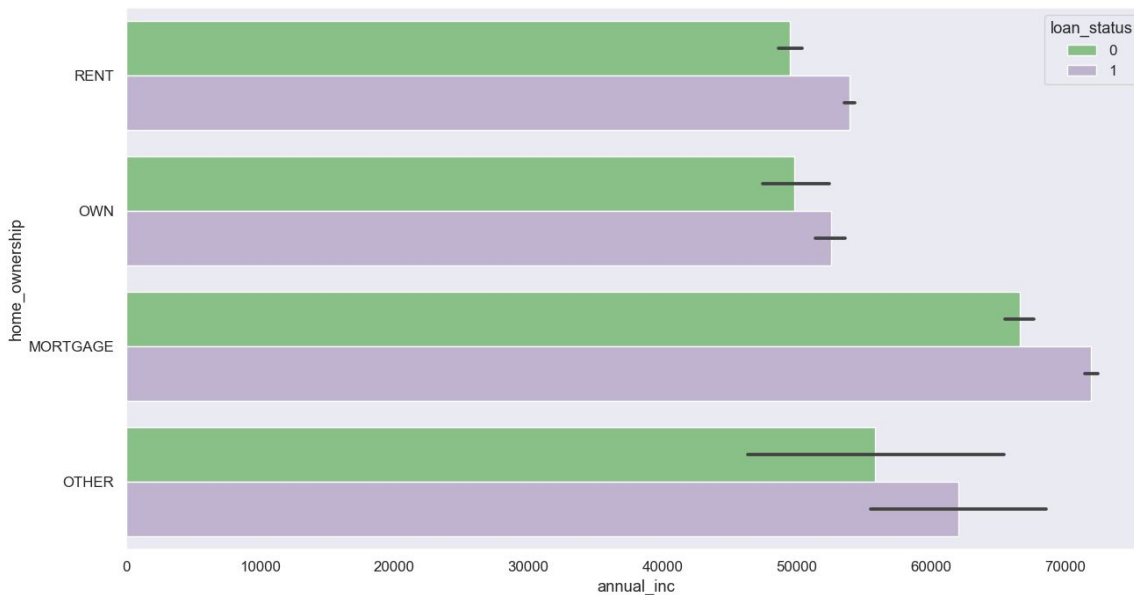
# Comparing Employment Period & Verification Status

- Verified loan applications had greater loan amounts, according to verification status data. This might imply that the companies are initially checking the loans with greater amounts.



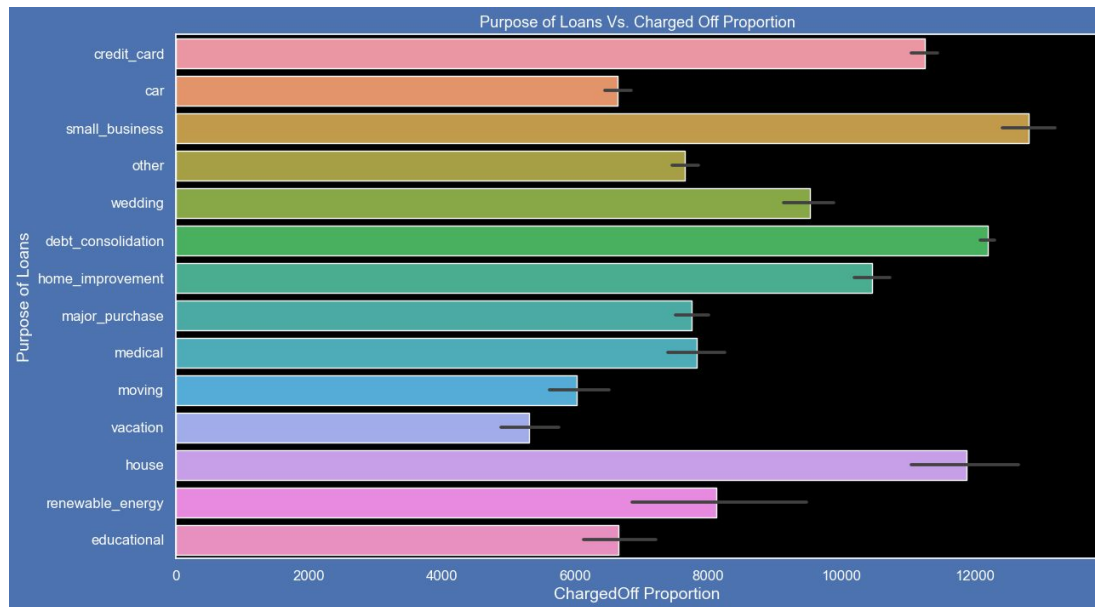
# Annual income and home ownership

- Applicant having home under mortgage status is the most between range of 15-17.5%



# Charged Off vs. Purpose Of Loan

- Most of the loan taken for small business have chance to be default



# Conclusion

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- Applicant taking loan have income between 60-70K
- Applicant having home\_ownership status as mortgage have income between 60-70K
- Applicant having income ranging 30-35K have interest rate of 15-17.5%
- Applicant who have taken home ownership status as mortgage have loan amount between 12-14K
- Employees working for more than 10 years and whose source are verified tend to get loan amount above 16K
- Applicant who have taken loan for small business have amount greater than 14K

## Suggestion for avoiding Credit Loss

- While giving the loan following factors can be taken into account to predict the avoidance of credit loss:
  - Debt to Income Ratio
  - Verification Status of applicant
  - Annual Income of the applicant
  - Employment Length of the applicant