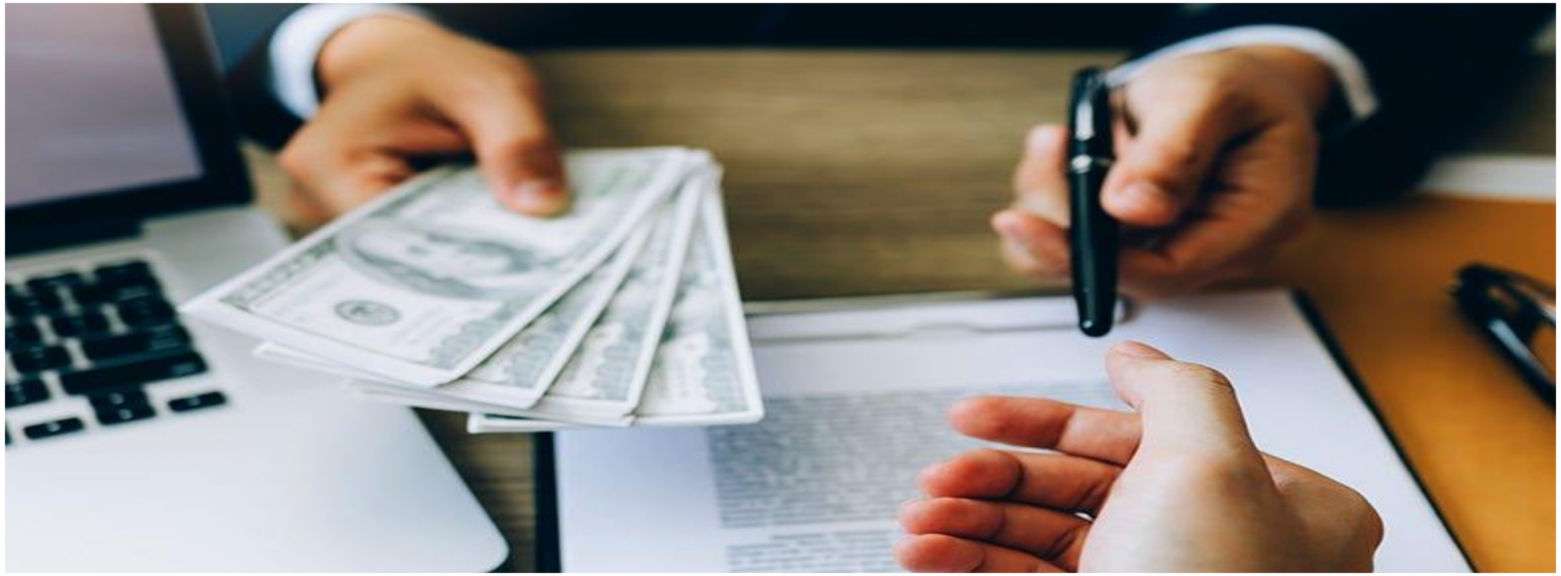
Lending Club Case Study



Business Understanding

Lending Club is a marketplace for personal loans that matches borrowers who are seeking a loan with investors looking to lend money and make a return.

When the company receives a loan application, the company 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

EDA Case Study - GOAL

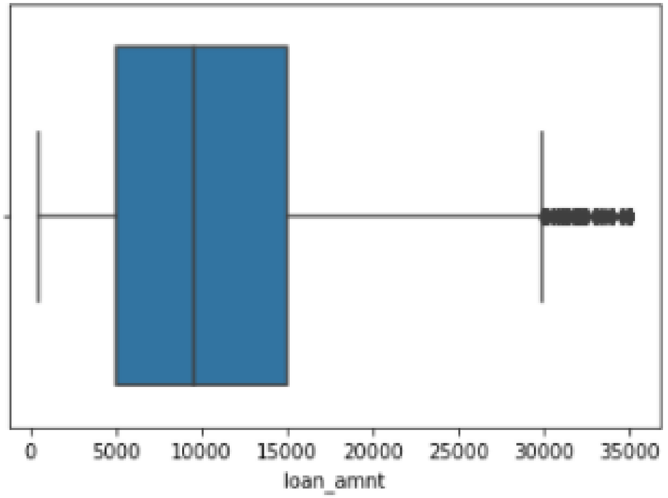
The Aim of the case study is to identify the potential risks associated with the bank's decision to provide the loan, based on the customers past loan applicants whether they 'defaulted' on loans or not and to mitigate the risk of losing money. Also, identifying the default customers involved using EDA.

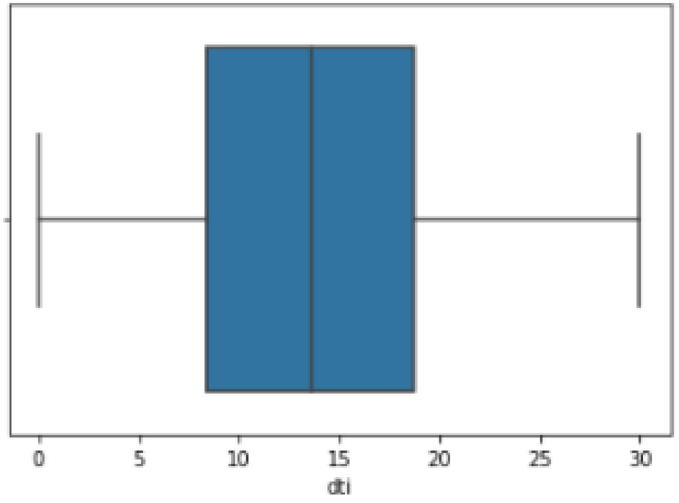
Univariate Analysis of Loan Status

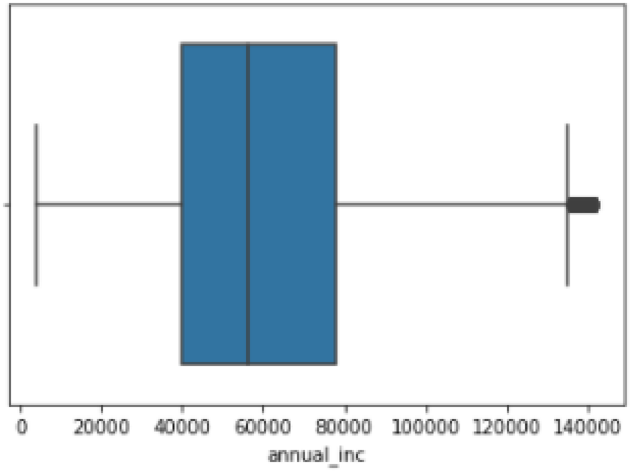
- Count of Loan Completed and Defaulted Applicants

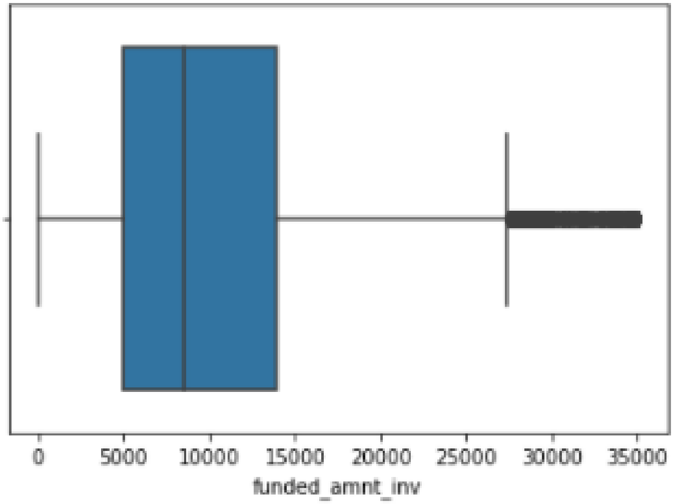
Analyzing Numerical Variables

- Analyzing numerical variables – loan amount, dti, annual income and funded amount by investors



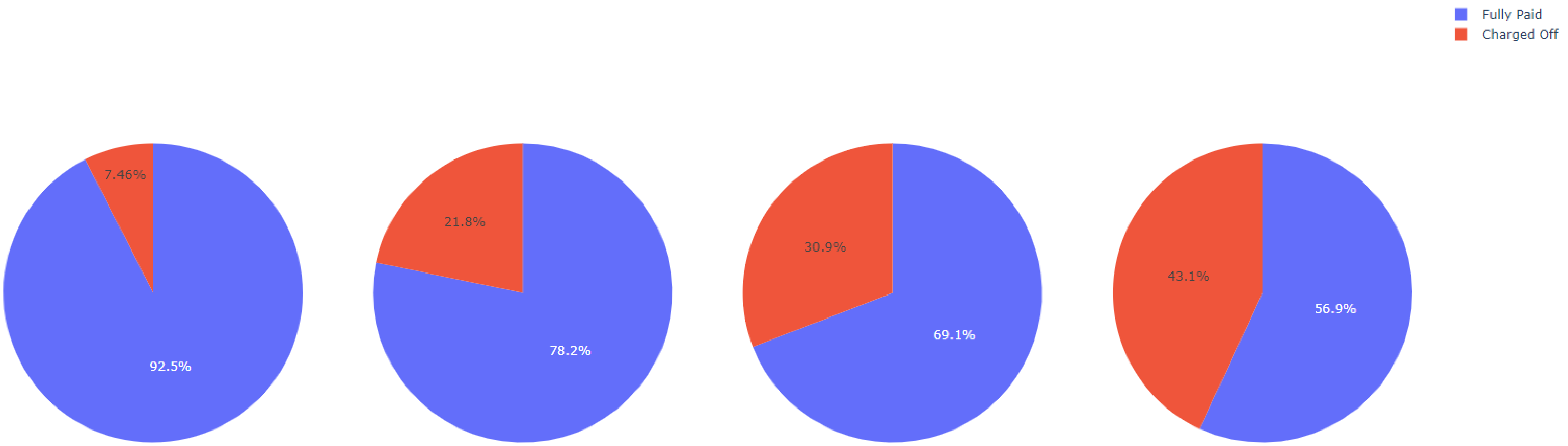






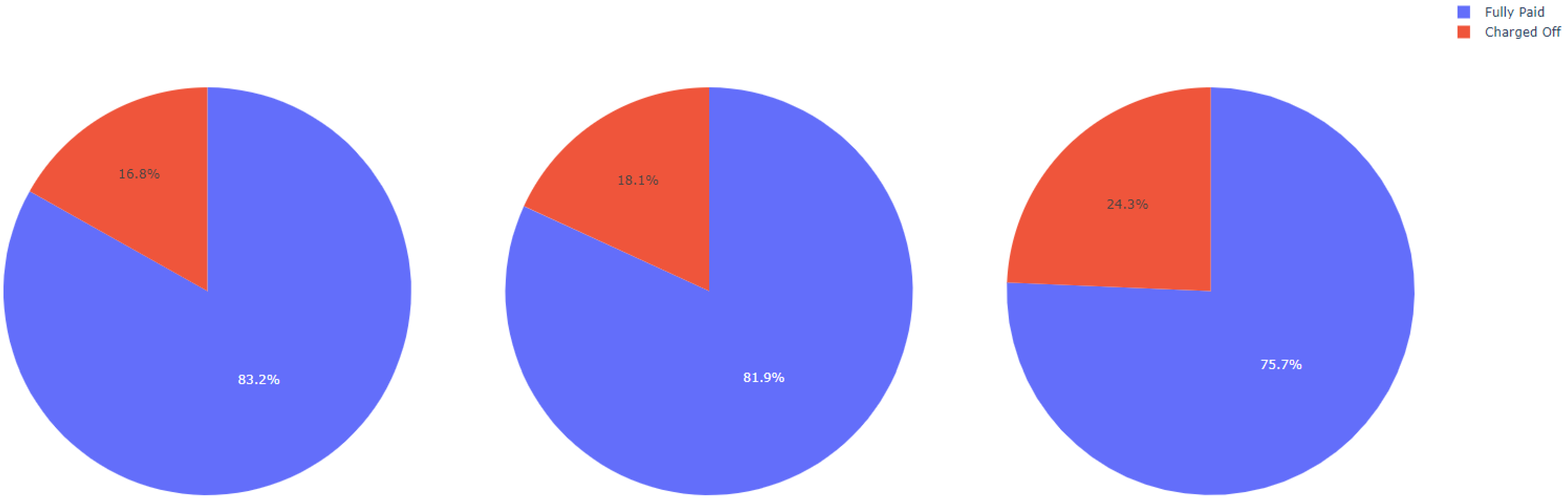
Int Rate vs Loan Status

- With Increase in interest rate, the percentage of people who defaulted is on a rise. The pie chart to the extreme right depicts the same.



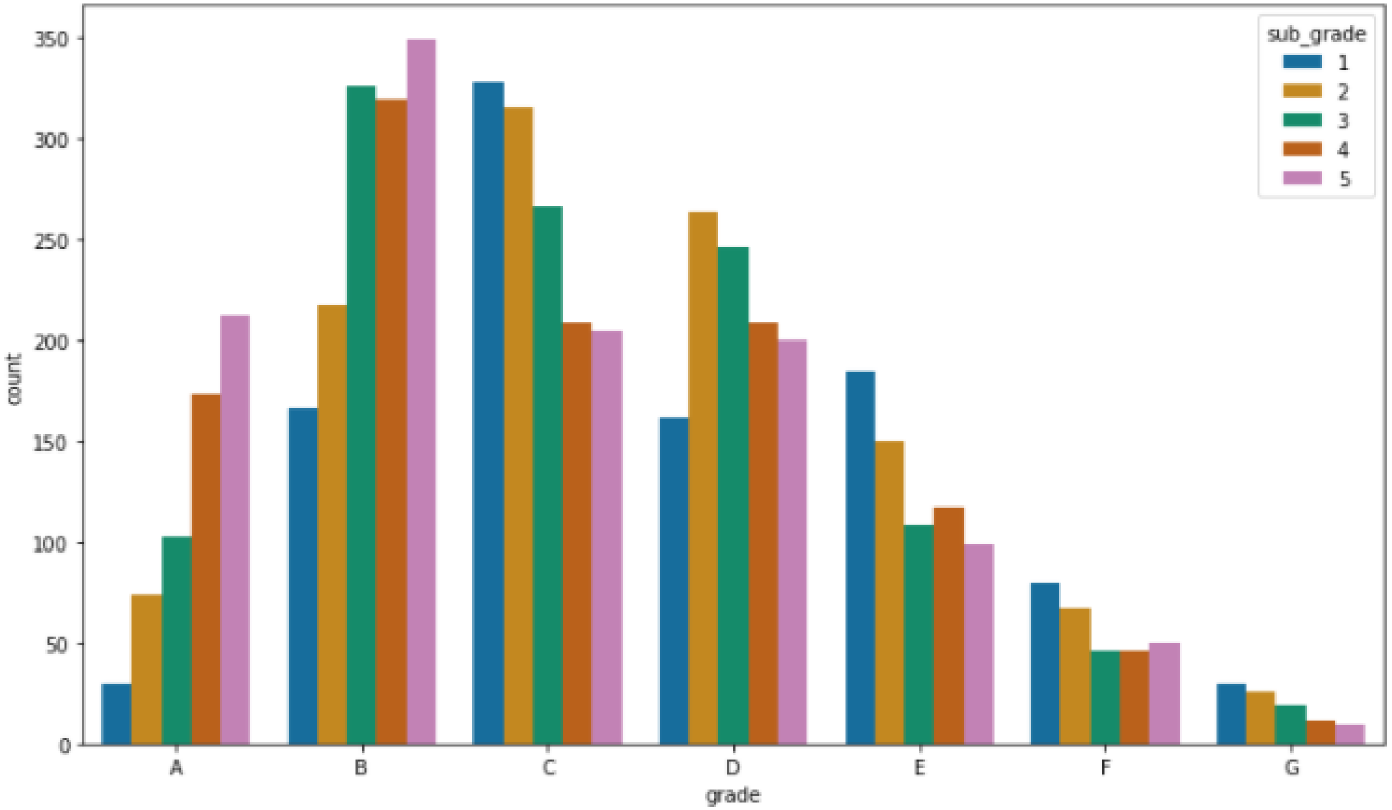
DTI vs Loan Status

- With Increase in dti, the percentage of people who defaulted is also higher.



Visualizing Categorical Data

- Defaulted Loan applicants against their Grades – highest being in Grade B

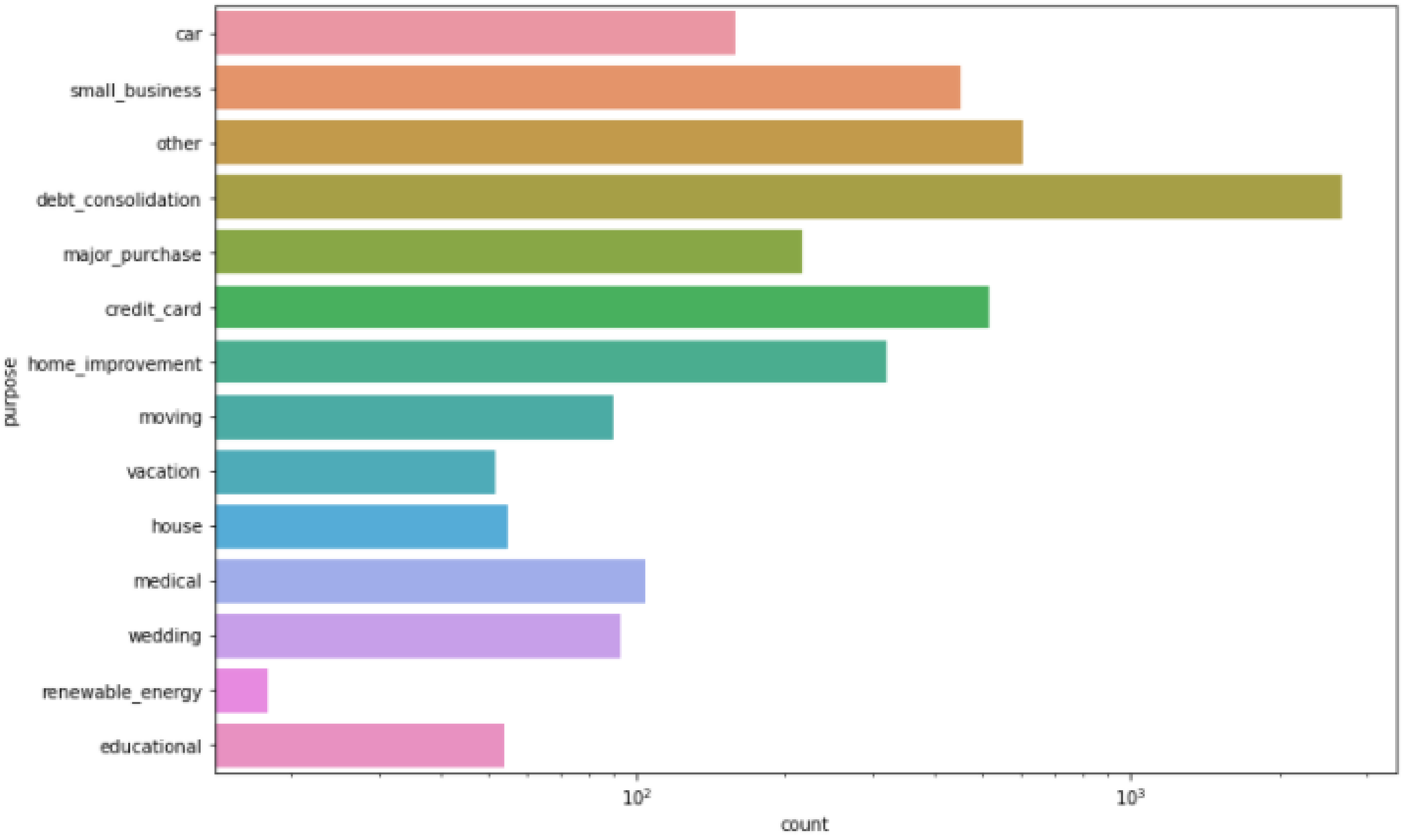


Home Ownership vs Loan Status

- Defaulted Loan applicants against their Home Ownership – highest being in Grade B

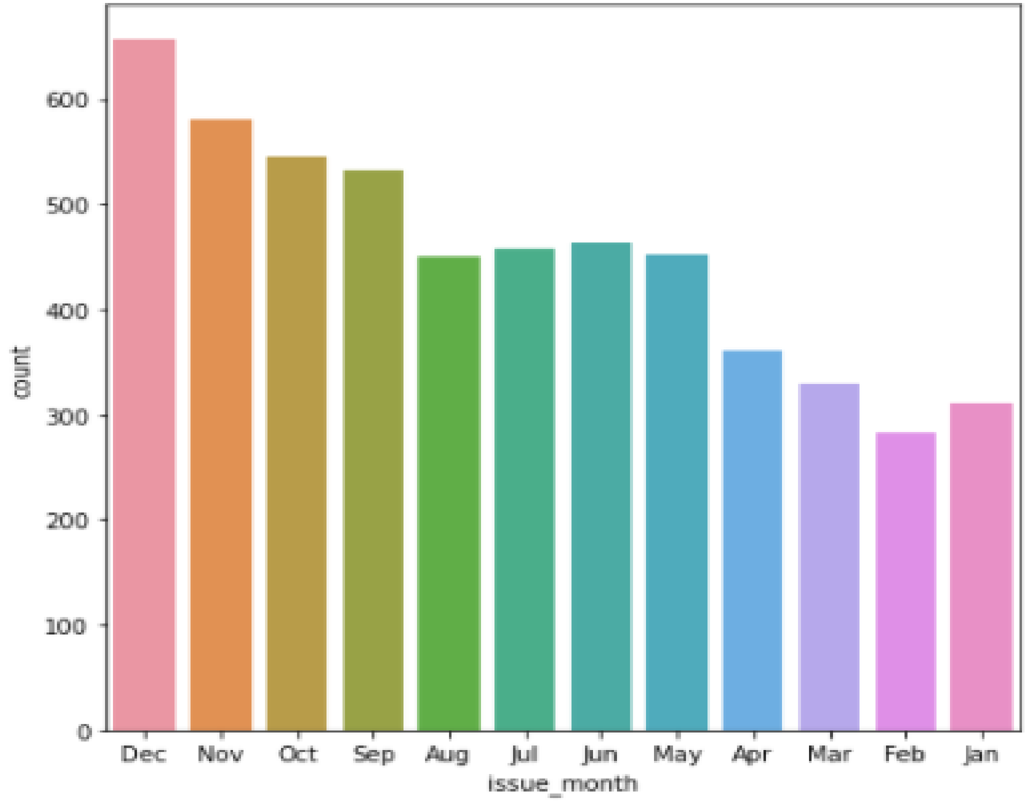
Purpose of Loan Applicationvs Loan Status

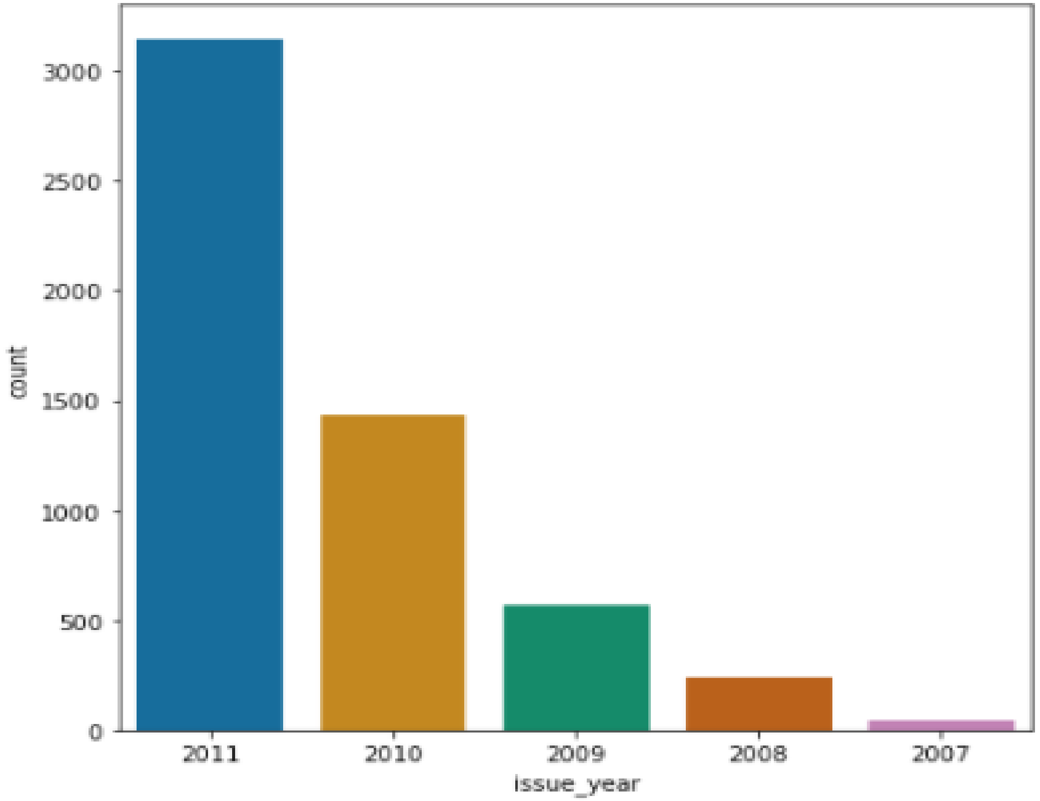
- Defaulted Loan applicants against the purpose of which they are applying for a loan– highest being for debt consolidation and 2nd being unknown “other” reason.



Analyzing by issued month and year

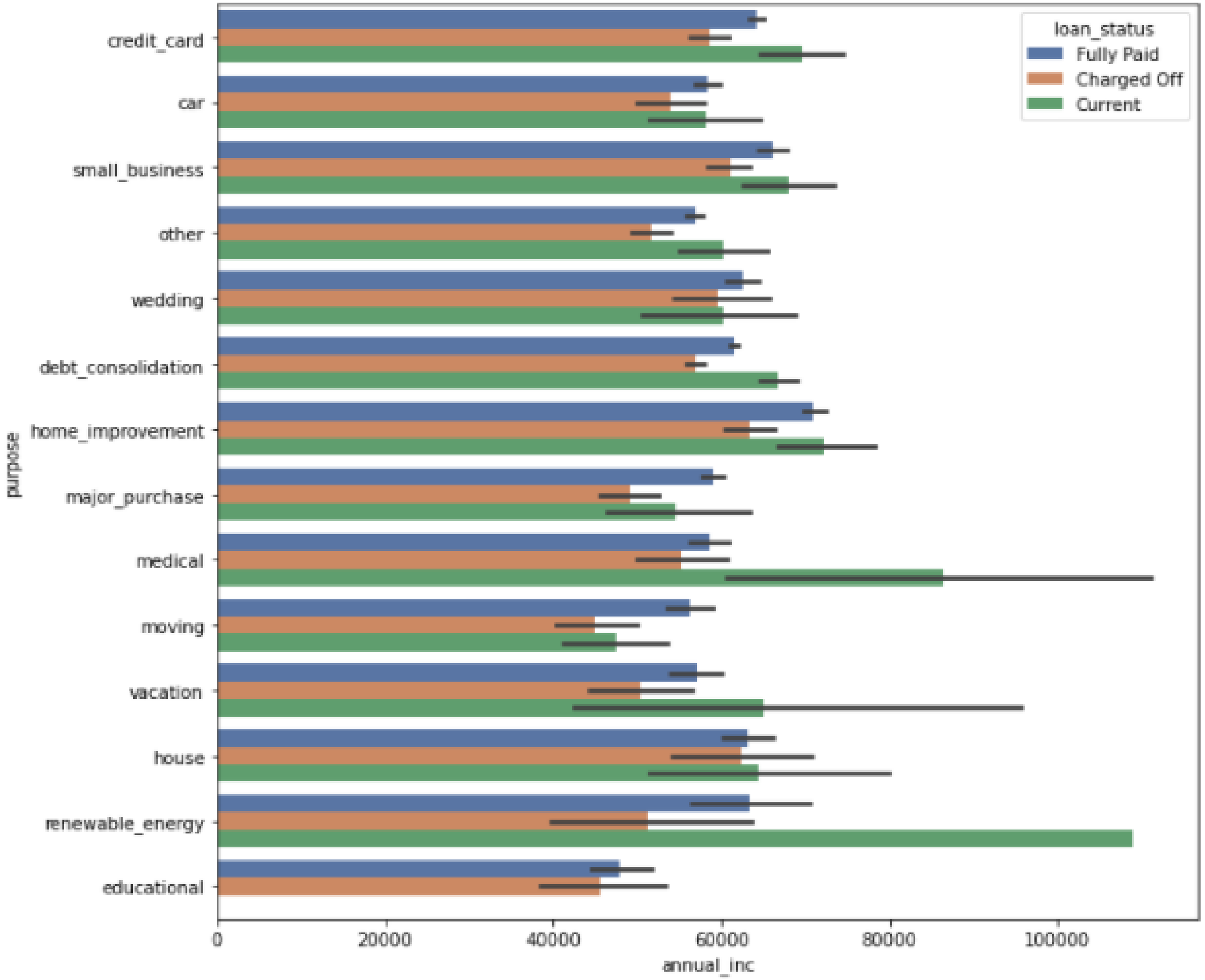
- It is seen that Maximum number of defaults occured in Dec. Loan issued in the year 2011 were also as compared to other years The Year 2011 has the highest number of loan approvals





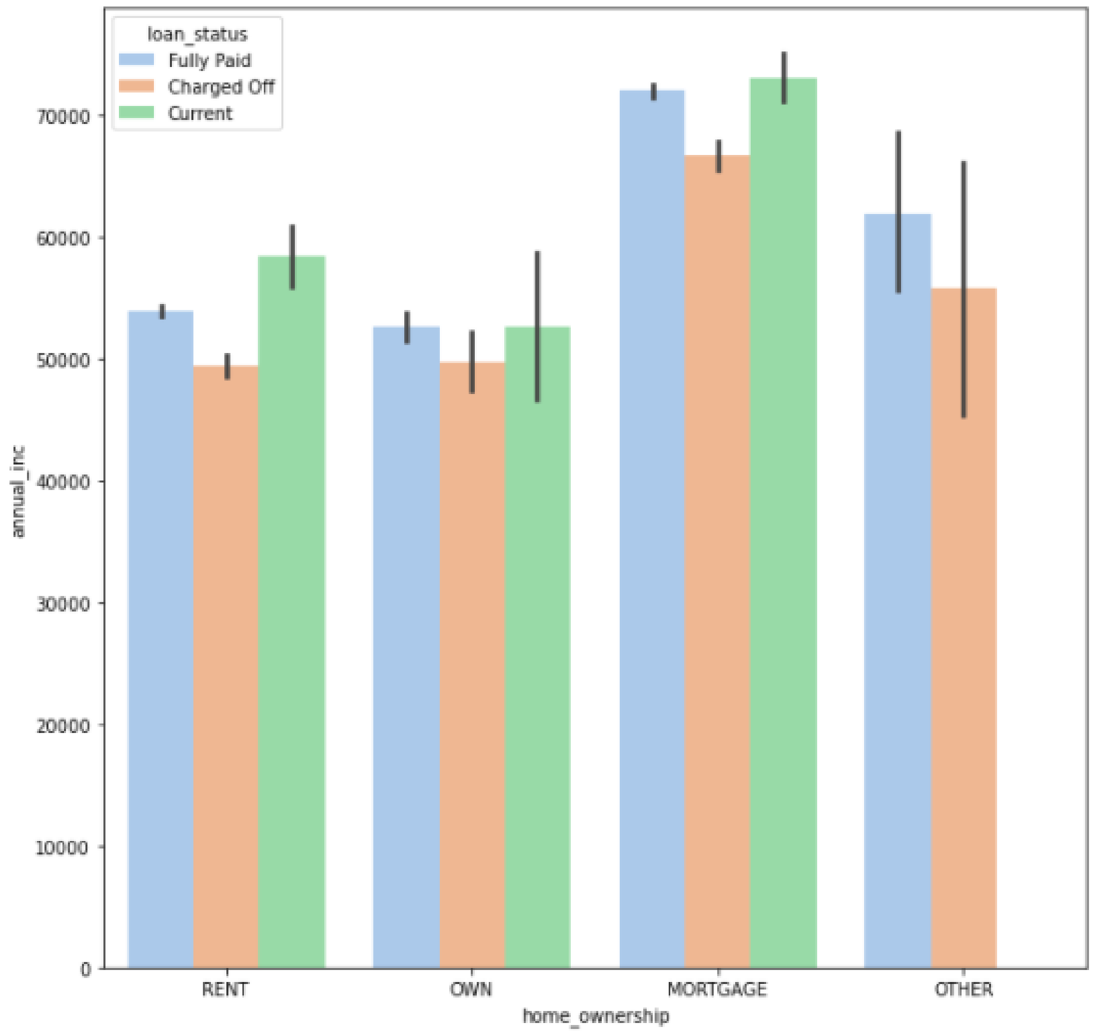
Analyzing annual income with other columns

- Applicants with higher salary mostly applied loans for "home_improvment", "house", "renewable_energy" and "small_businesses“



Annual Income vs Home Ownership

This graph clearly shows the count of people with respect to Annual income and their respective home ownerships.



Observations

- The above analysis with respect to the charged off loans. There is a more probability of defaulting when :
- Applicants taking loan for 'home improvement' and have income of 60k -70k
- Applicants whose home ownership is 'MORTGAGE and have income of 60-70k
- Applicants who have taken a loan for small business and the loan amount is greater than 14k
- Applicants whose home ownership is 'MORTGAGE and have loan of 14-16k

Recommendations

- There is a more probability of defaulting when :
- Applicants having house_ownership as 'RENT' Applicants who use the loan to clear other debts When the purpose is 'debt_consolidation’
- With high interest rate, more and more customers tend to default
- Loan approval should be limited to people with less dti – debt to income ratio.