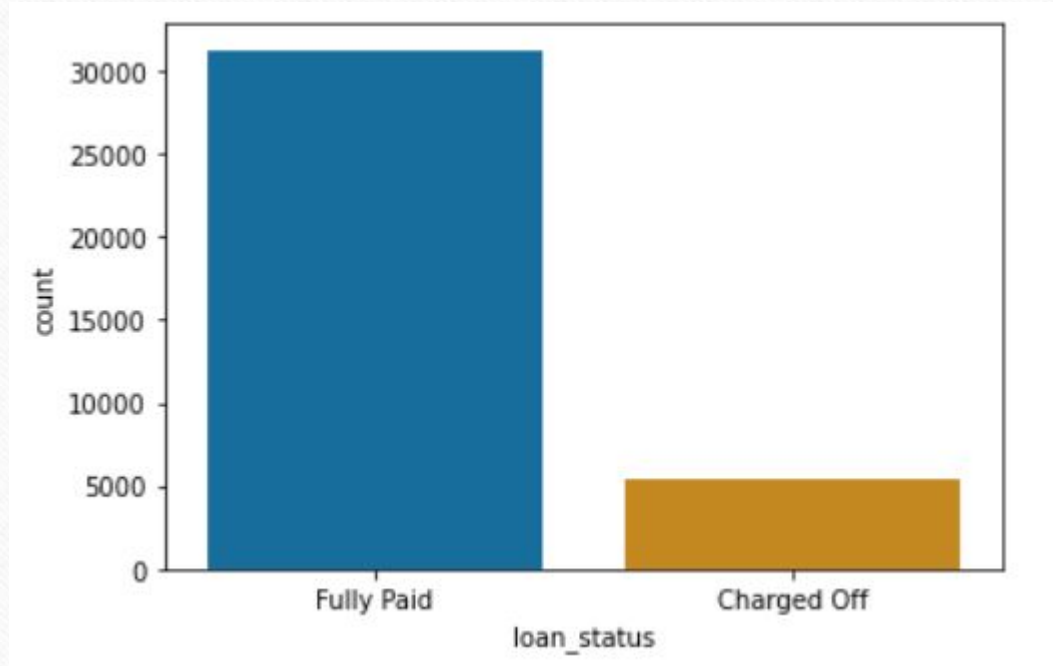# Lending Club Case Study
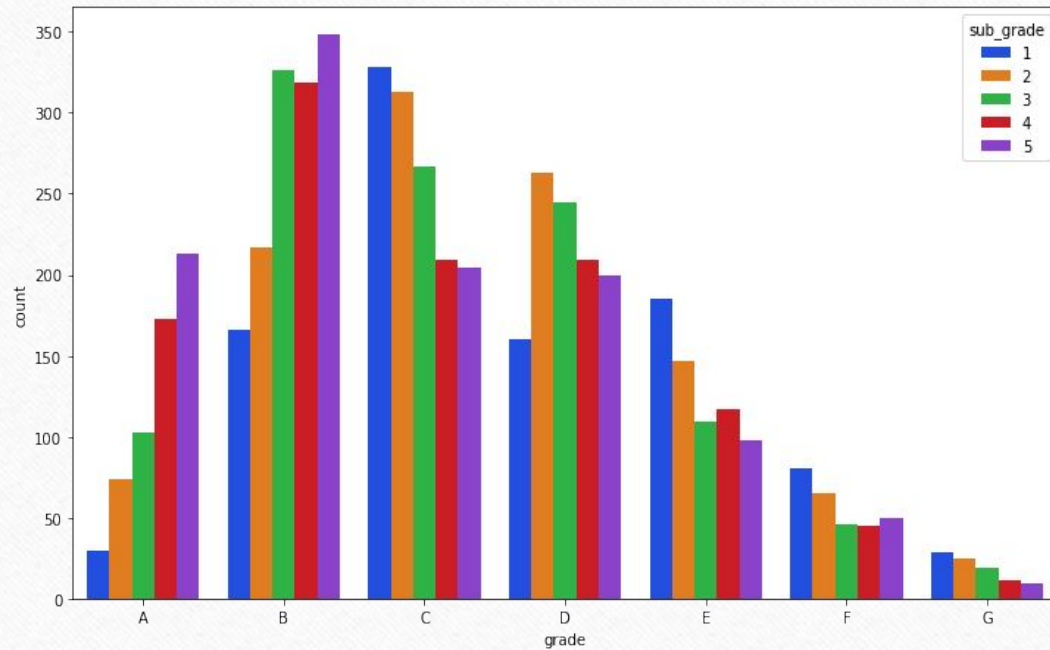
Group Facilitator: Yaseen Munawwer

Team member: Mehreen Mushtaq Shamim

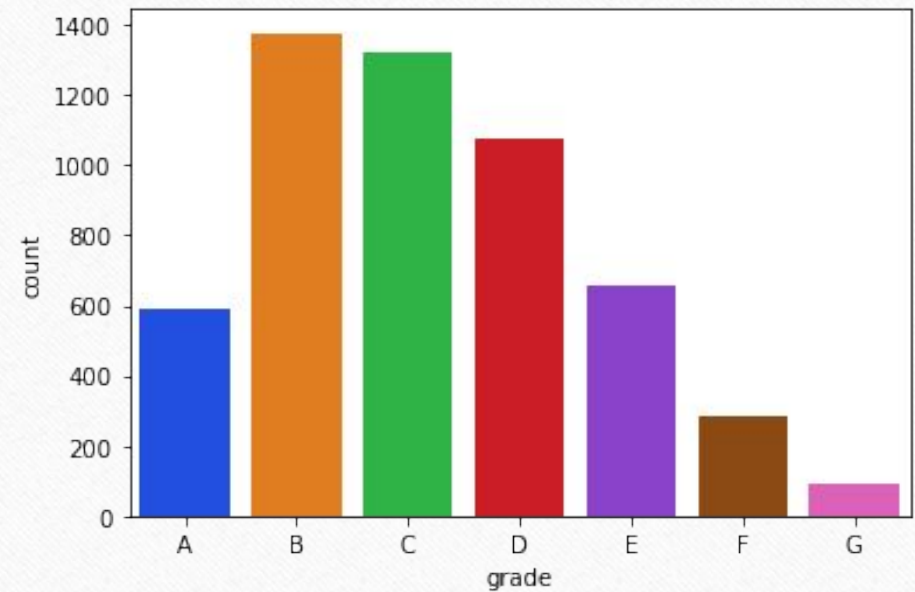**As we are analyzing the user details and the driving factors of loan defaulting before approving loan.**

We are analyzing and visualizing only the defaulter data. So sub setting the data while plotting only for 'Charged Off' loan_status for below plots
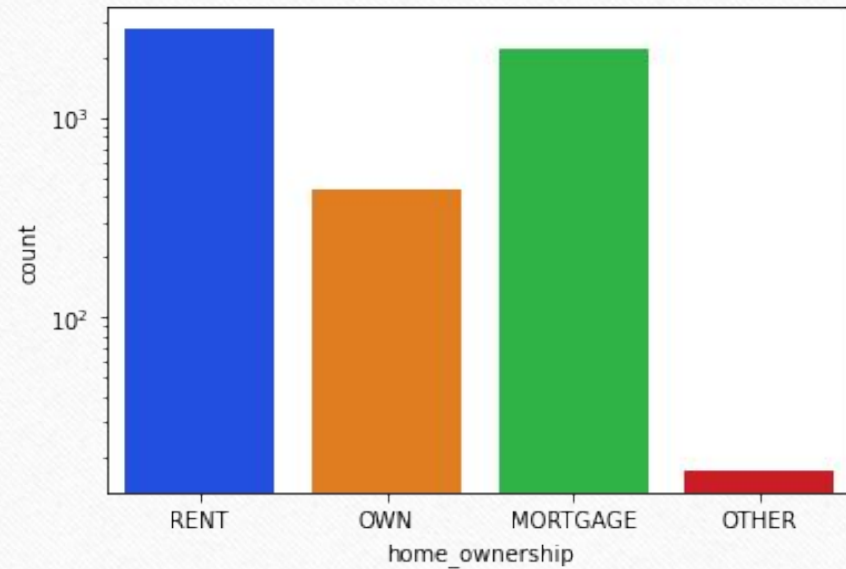
COUNT VS GRADE

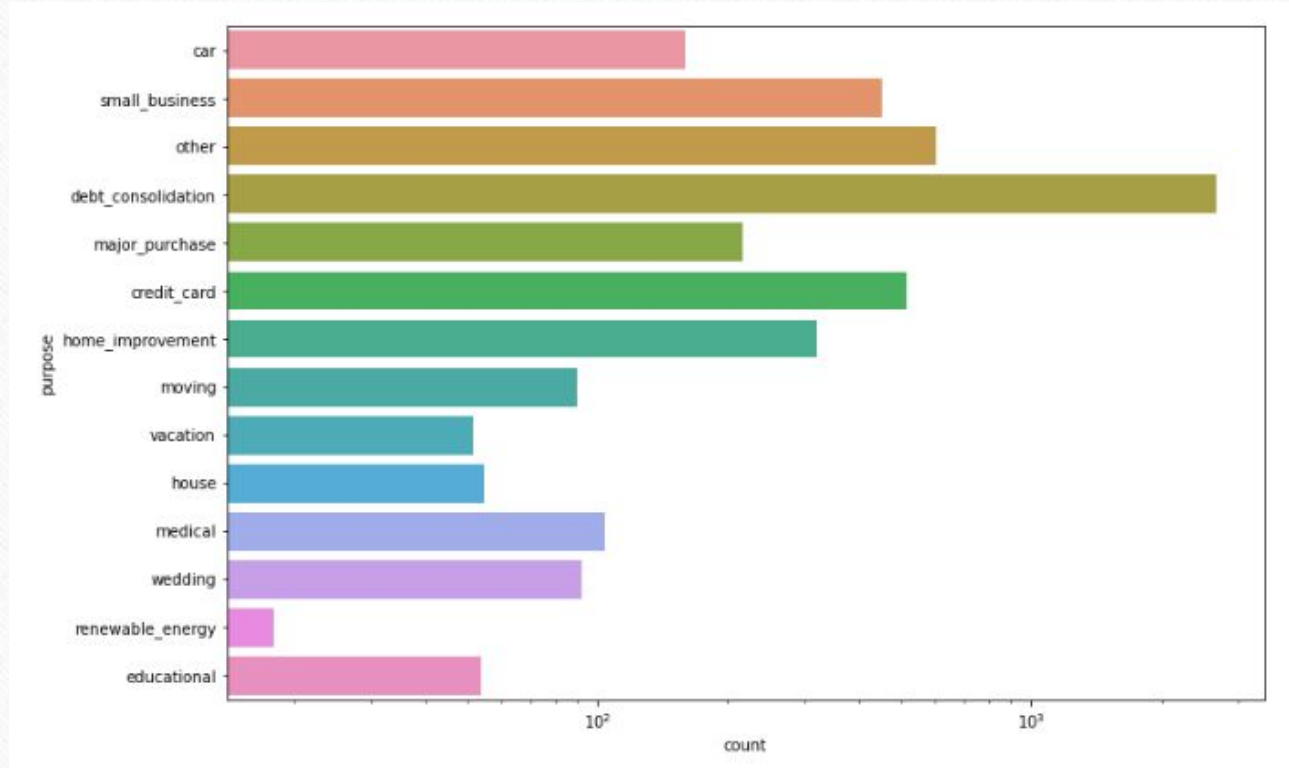**Analysis: From the above plot, Highest defaulters are in grade B sub grade B5**
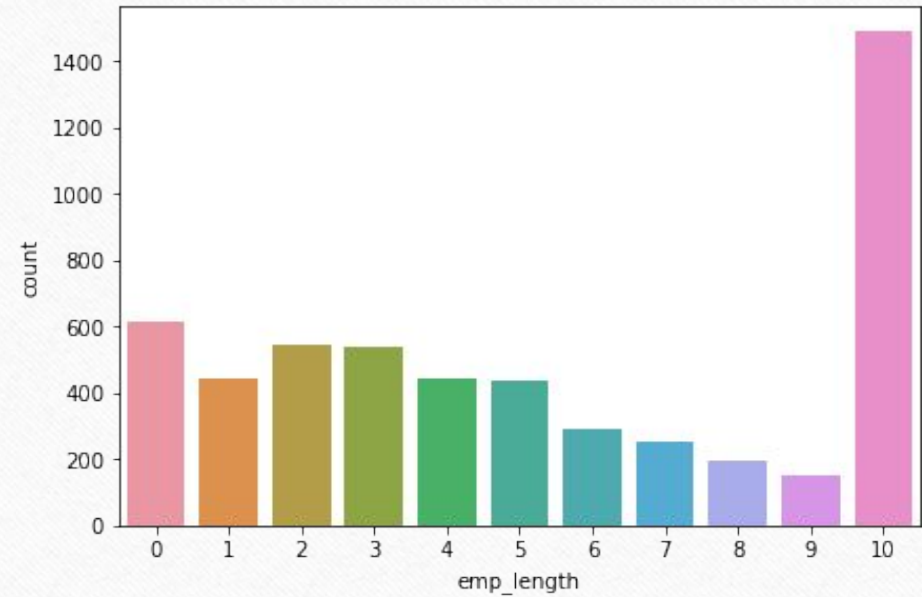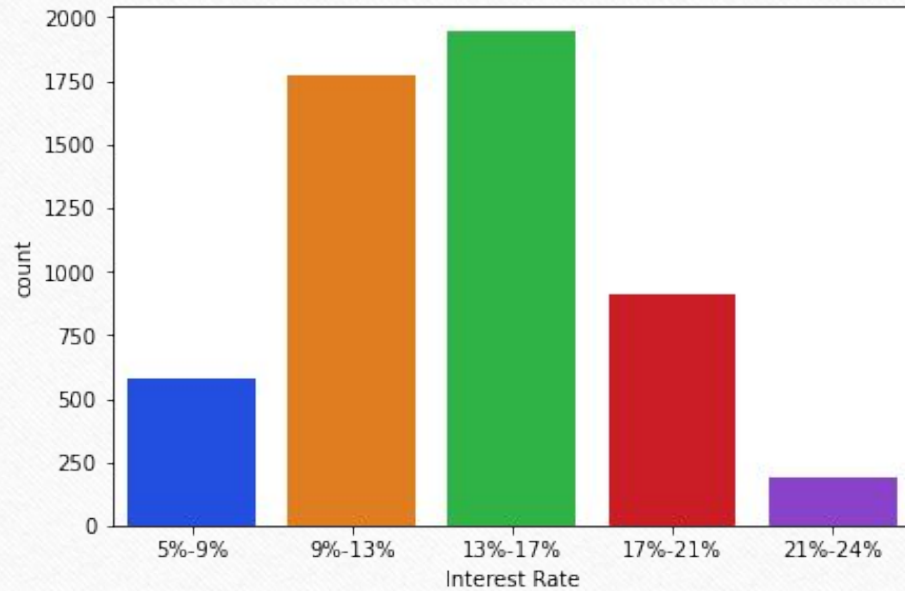

Analysis: From the above plot, Highest defaulters are in grade B

Analysis: From the above plot, Highest defaulters from borrowers staying in rented accomodations.
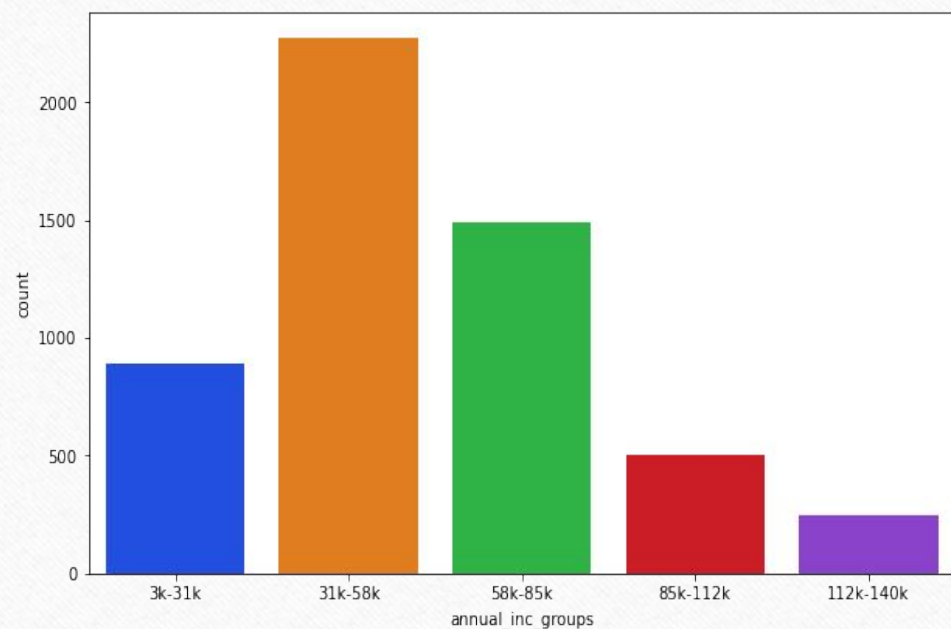
Analysis: From the above plot, highest defaulters are in debt consolidation category.
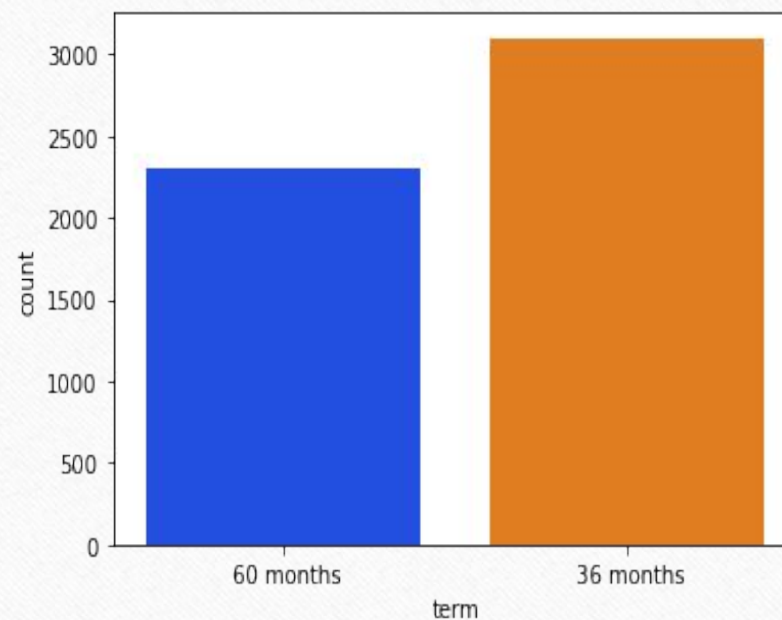
Analysis: From the above plot, highest defaulters are in the interest range of 13%-17% and employment length of more that 10 years.
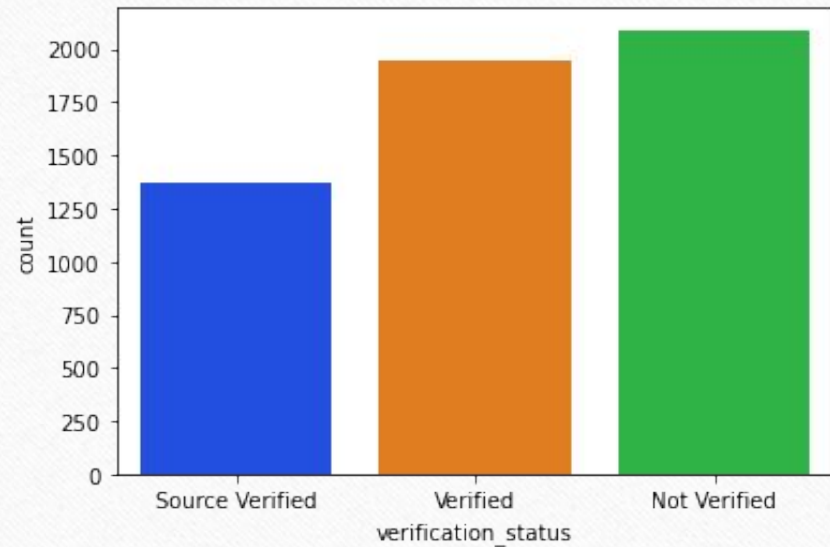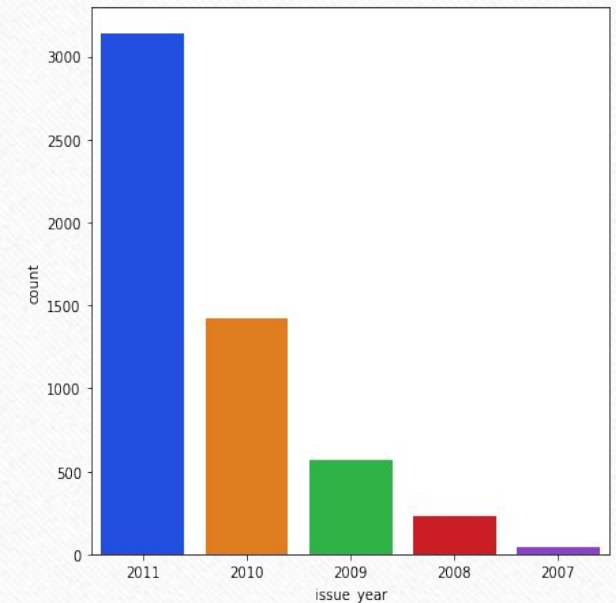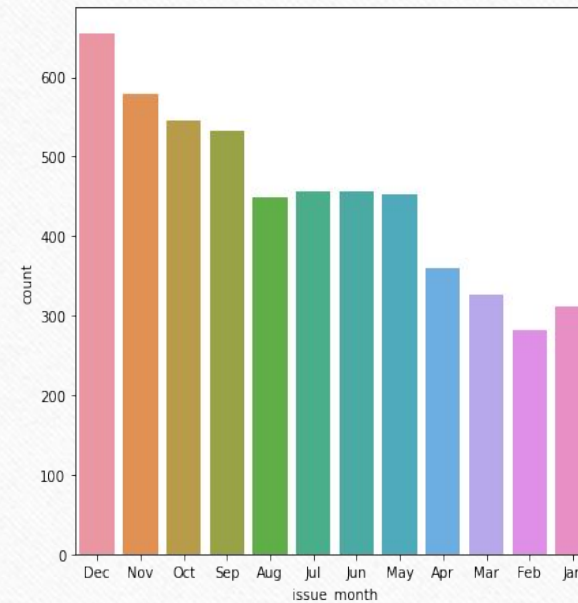
Analysis: From the above plot, highest defaulters are in 31K- 58K group.

Analysis: From the above plot, highest defaulters are in the term period of 36 months.

Analysis: From the above plot, highest defaulters are in the Not Verified category.

Analysis: From the above plot, highest defaulters are in the loan sanctioned/issues month of December and issue year of 2011.

Analysis: From the above plot, highest defaulters are in the 5k-10k range of the total amount funded by investors.

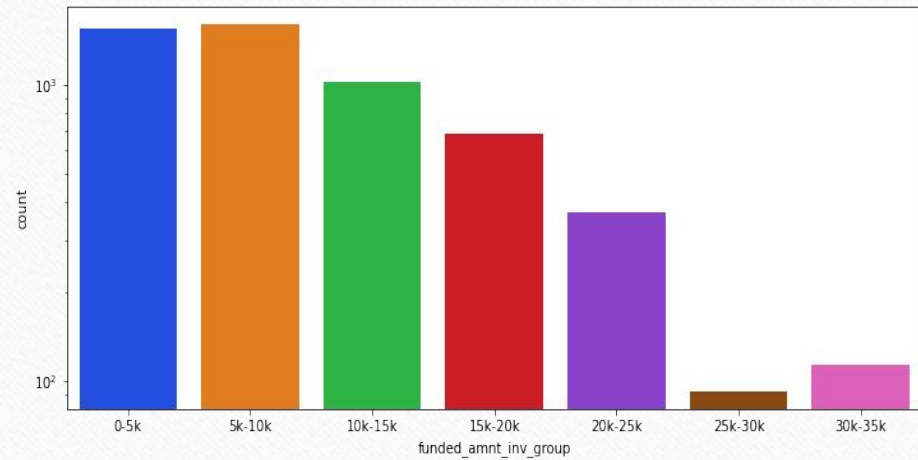**Analysis: From the above plot, highest defaulters are in the 5k-10k range of the loan amount groups.**
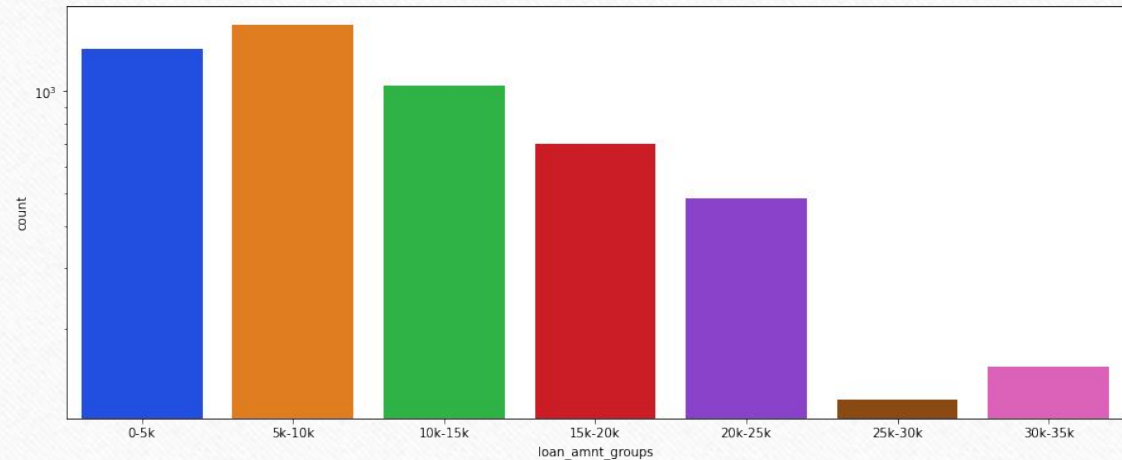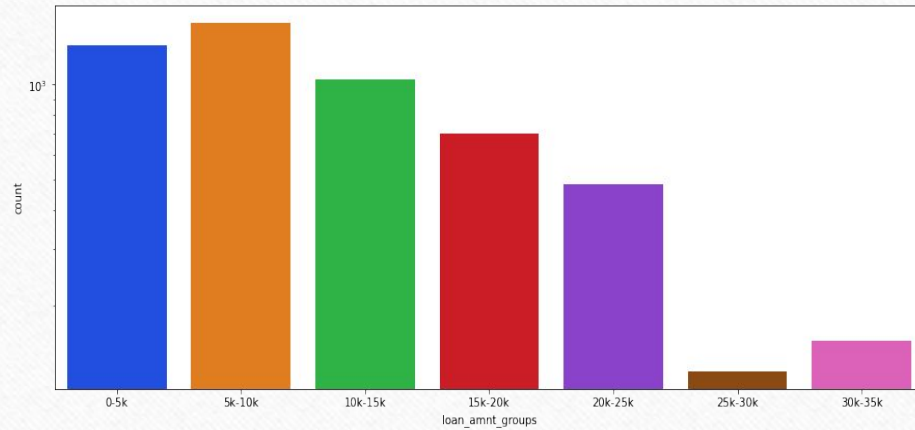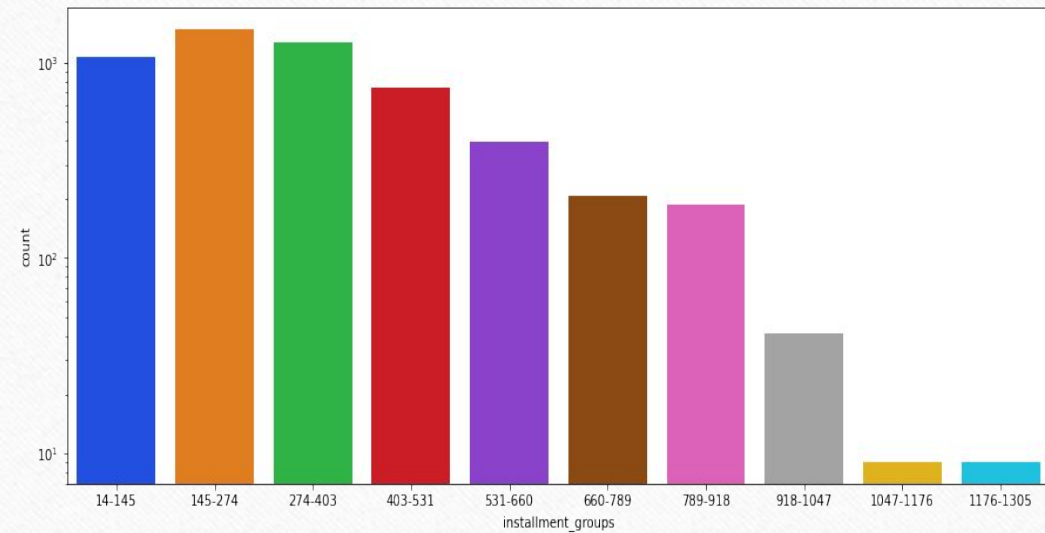
**Analysis: From the above plot, highest defaulters are in the 12-18 range.**

Analysis: From the above plot, highest defaulters are in the 145-274 range.

Observations

The above analysis with respect to the charged off loans for each variable suggests the following. There is a more probability of defaulting when :

- Highest defaulters are in grade B sub grade B5
- Highest defaulters are in grade B
- Highest defaulters from borrowers staying in rented accomodations.
- Highest defaulters are in debt consolidation category/loan to clear other debts.
- Highest defaulters are in the interest at the rate of 13%-17% and employment length of more that 10 years.
- Highest defaulters are in 31K- 58K group.
- Highest defaulters are in the term period of 36 months.
- Highest defaulters are in the loan status- Not Verified category.
- Highest defaulters are in the loan sanctioned/issues month of December and issue year of 2011.The high number of loan defaults in 2011 could be due to the financial crisis in USA (Assuming the data is of US origin)
- Highest defaulters are in the 5k-10k range- When funded amount by investor is between 5000-10000.
- Highest defaulters are in the 5k-10k range of the loan amount groups.
- Highest defaulters are in the 12-18 range for DTI.
- Highest defaulters are in the 145-274 monthly installments range.
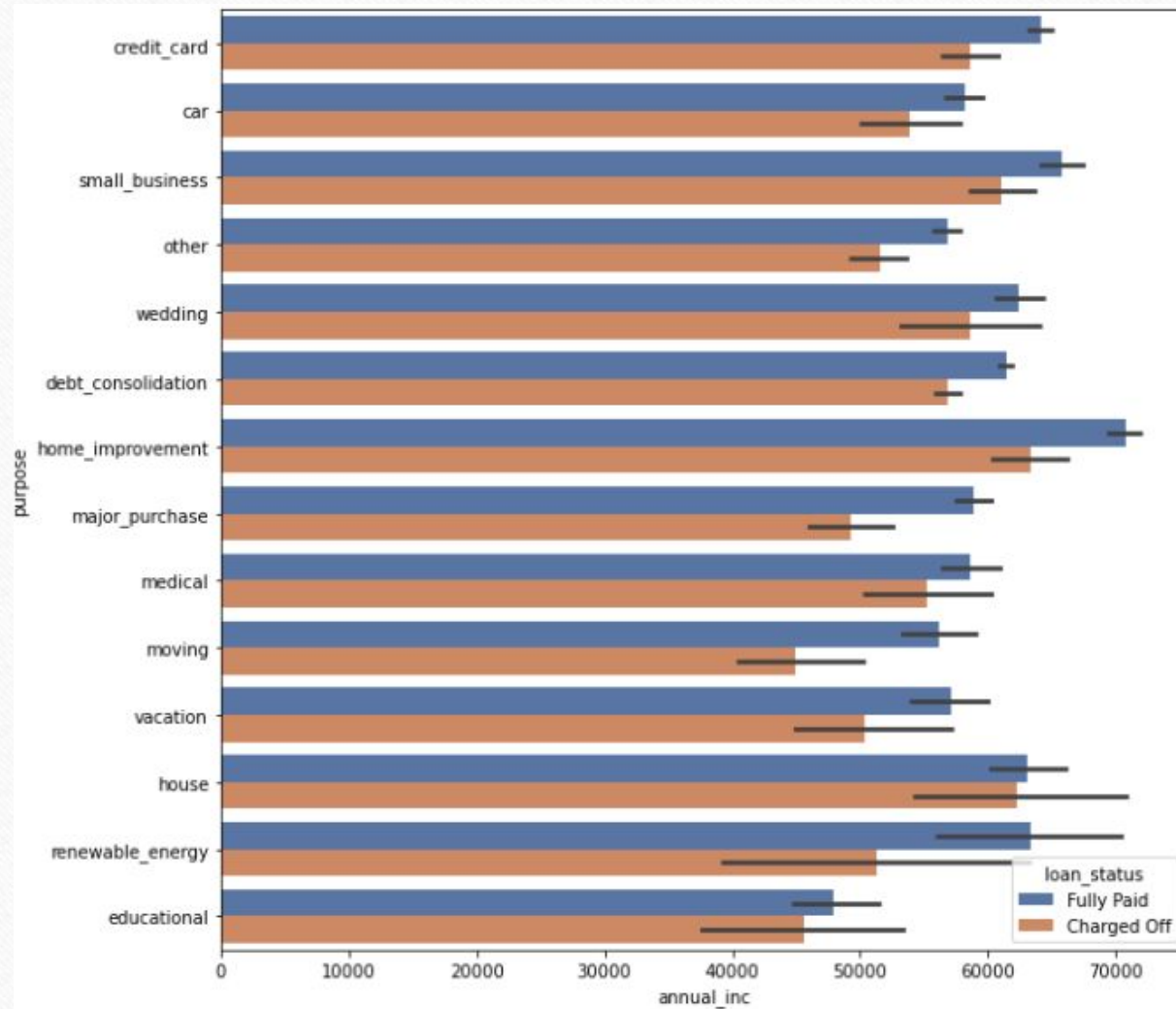
Analysis:Though the number of loans applied and defaulted are the highest in number for "debt_consolation", the annual income of those who applied isn't the highest.

Applicants with higher salary mostly applied loans for "home_improvment", "house", "renewable_energy" and "small_businesses". Applicants taking loan for 'home improvement' and have income of 60k -70k
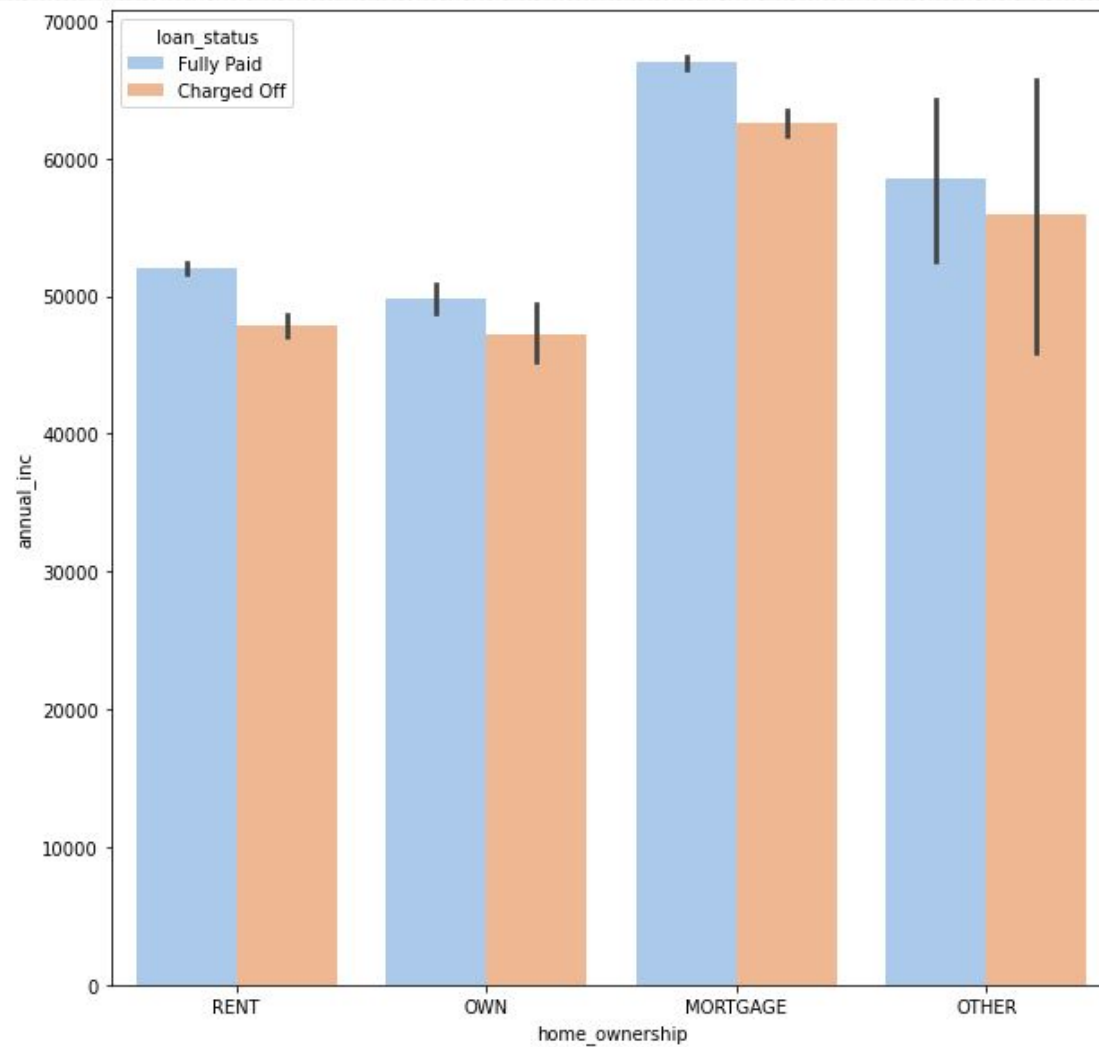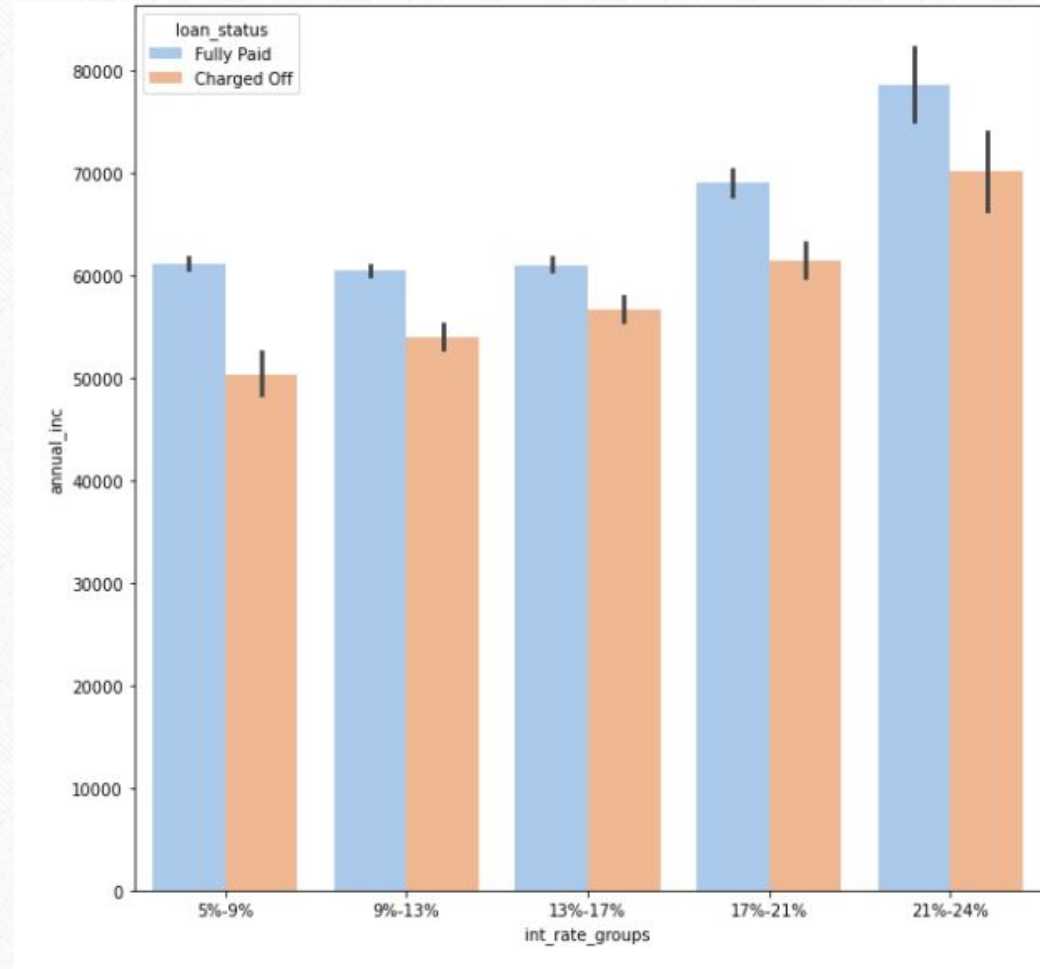
Analysis: Defaulters are the applicants whose home ownership is 'MORTGAGE' and have income of 60-70k
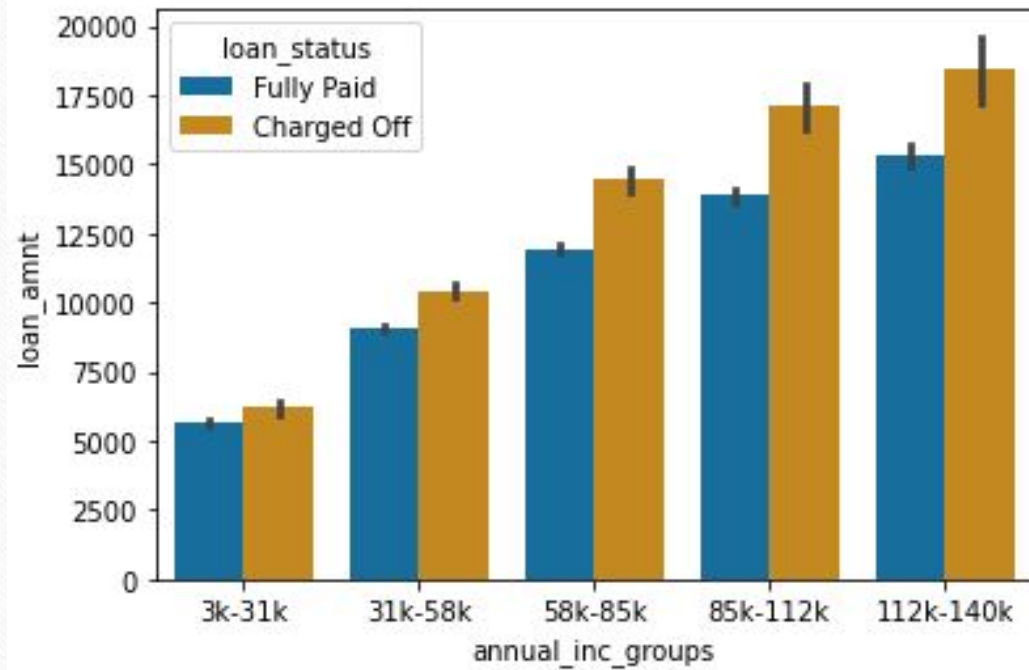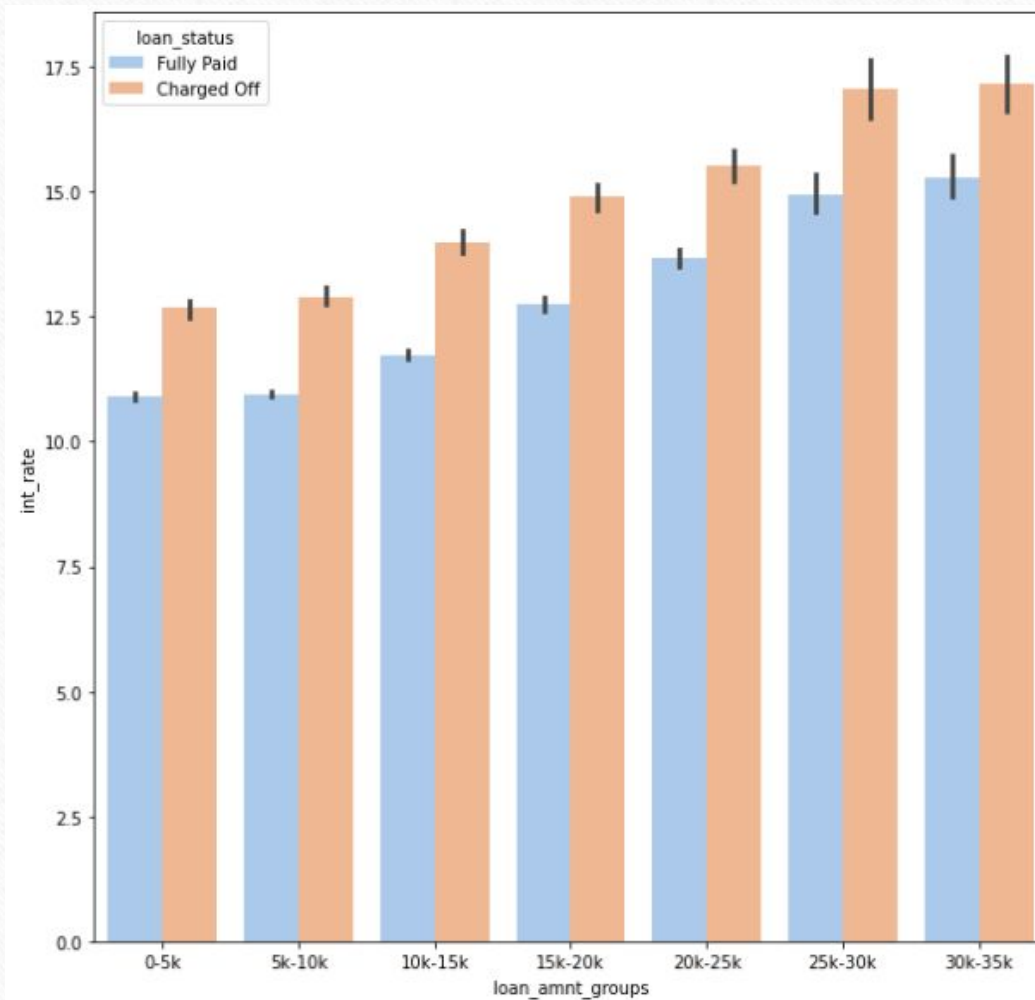
Across all the income groups, the loan_amount is higher for people who defaulted.

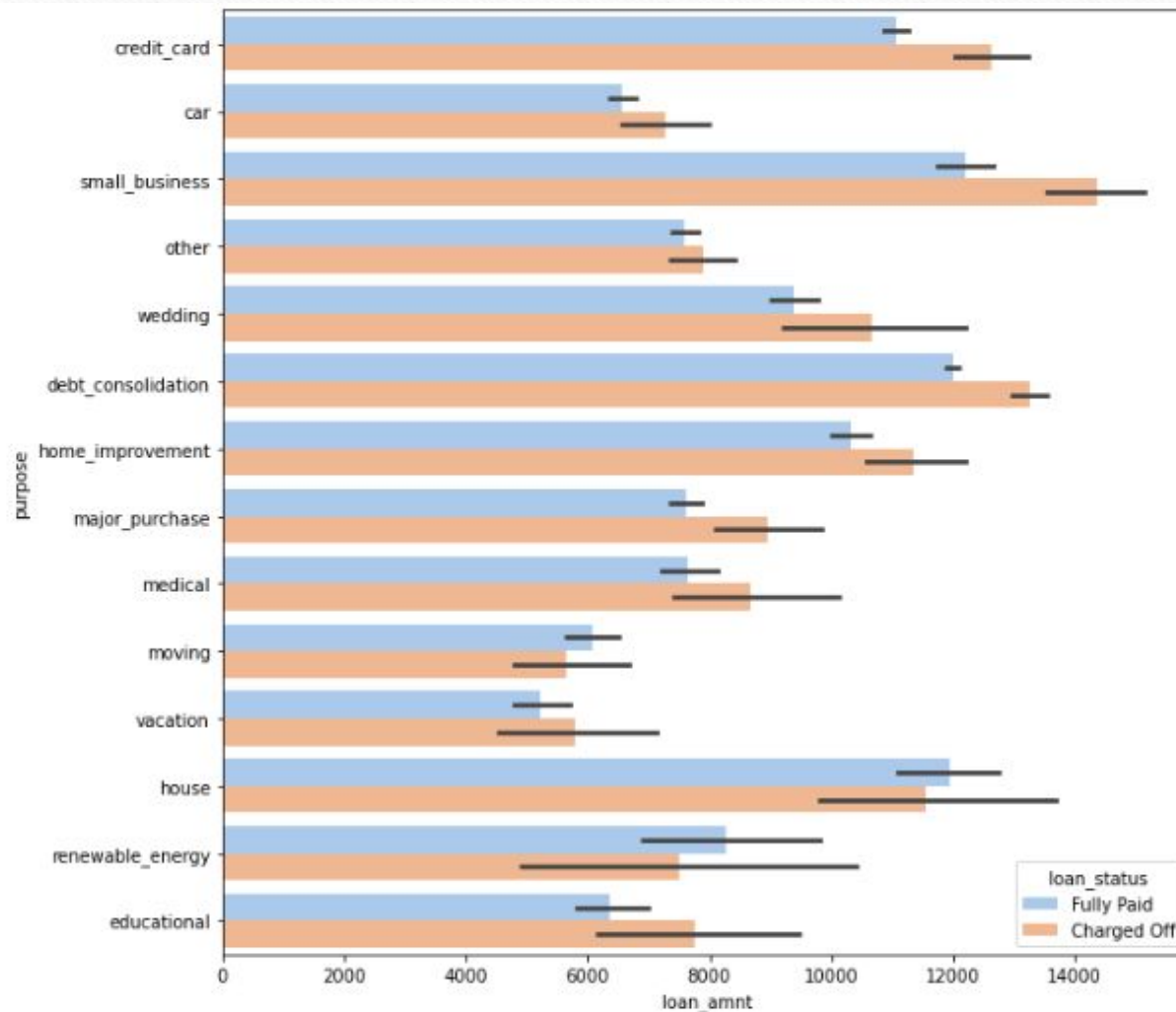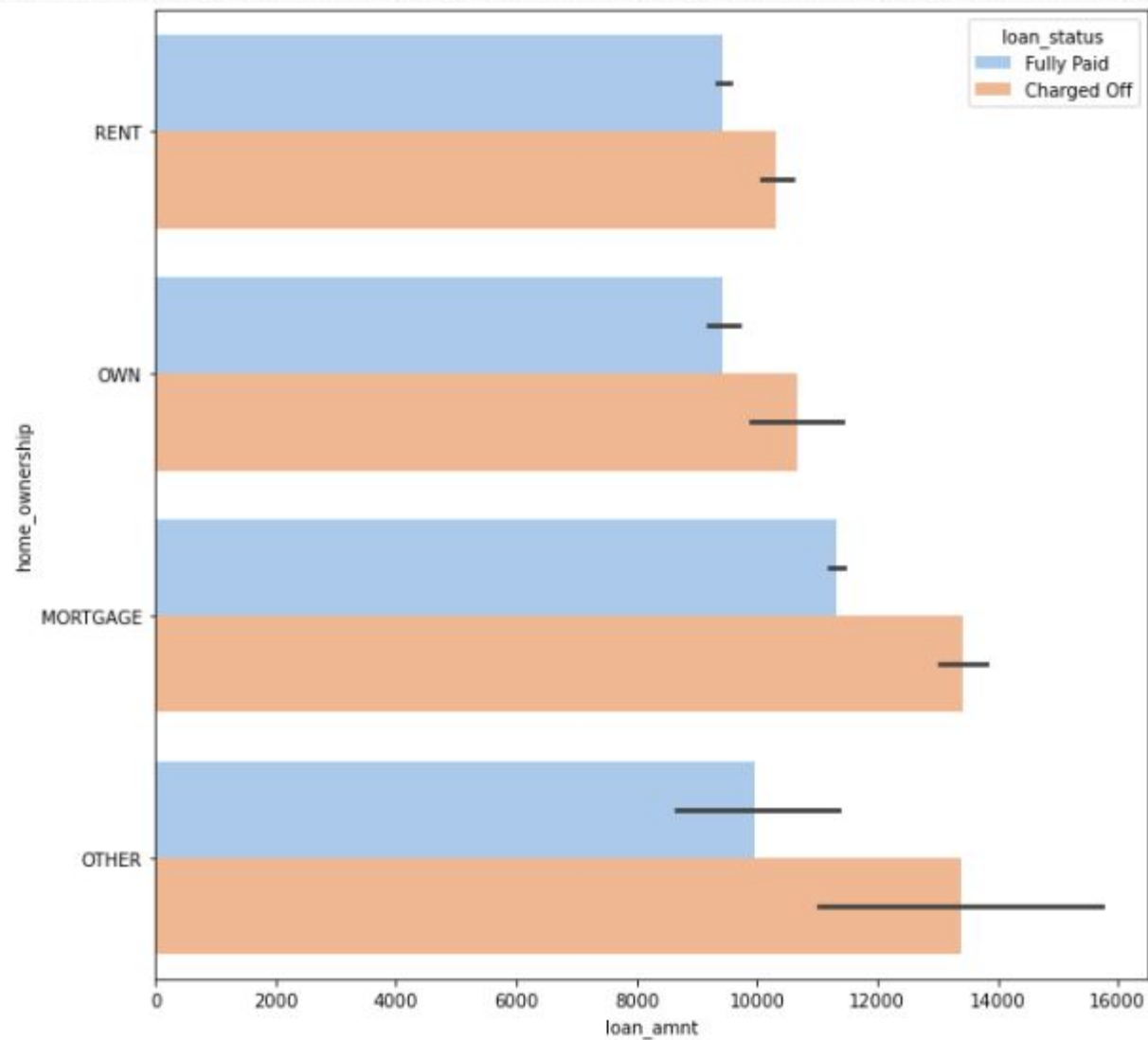**Analysis: Defaulters are applicants who receive interest at the rate of 21-24% and have an income of 70k-80k.**

Analysis: Defaulters are applicants who have taken a loan in the range 30k - 35k and are charged interest rate of 15-17.5 %

PURPOSE VS LOAN_AMNT

Analysis: Defaulters are applicants who have taken a loan for small business and the loan amount is greater than 14k
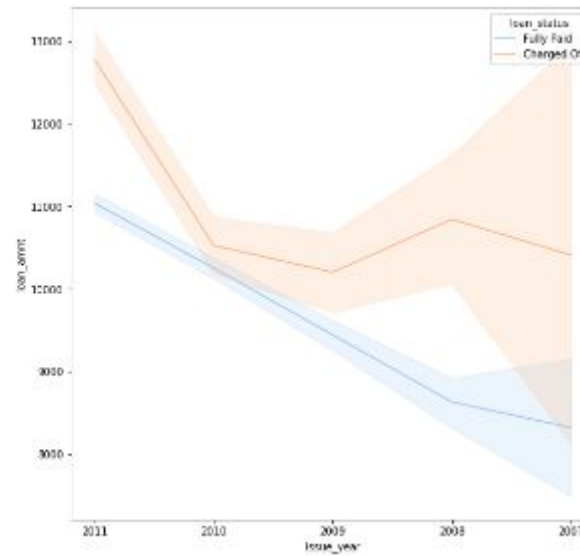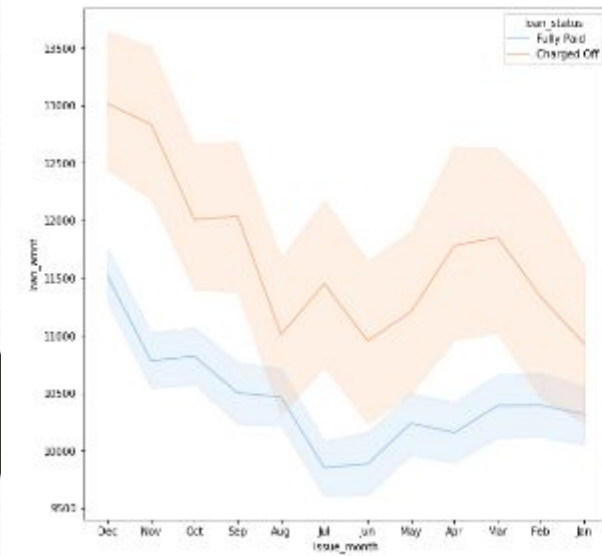
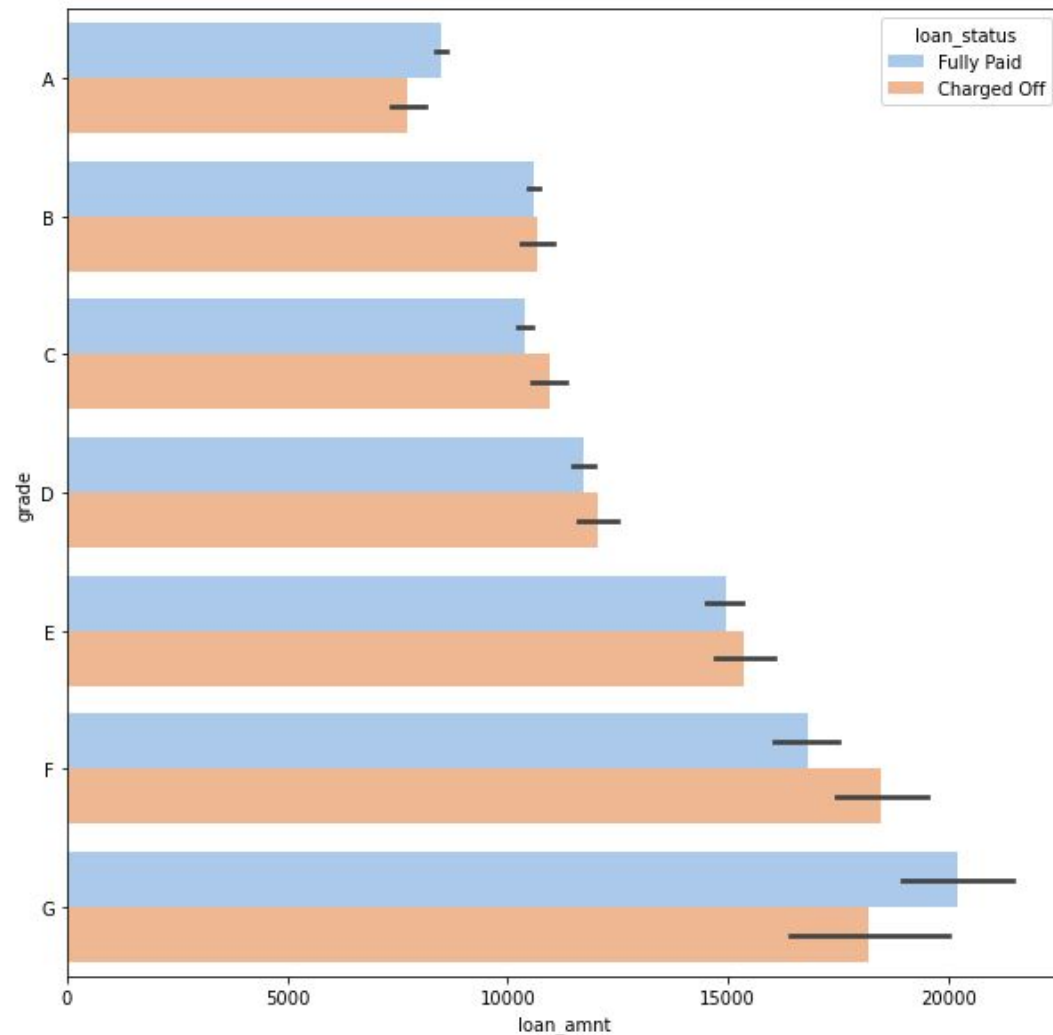# HOME_OWNERSHIP VS LOAN_AMNT

Analysis: Defaulters are applicants whose home ownership is 'MORTGAGE and have loan of 14-16k
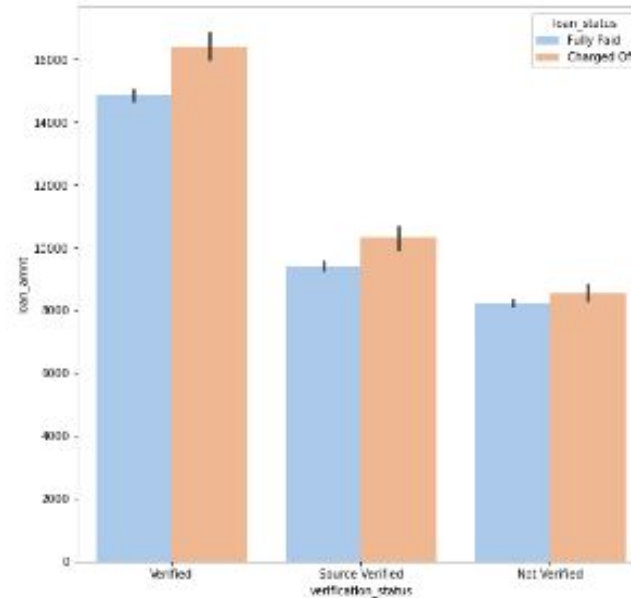
Analysis: Defaulters are when issue month is Dec and issue year is 2011

GRADE VS LOAN_AMNT

Analysis: Defaulters are when grade is F and loan amount is between 15k-20k

LOAN_AMNT VS EMP_LENGTH/VERIFICATION_STATUS
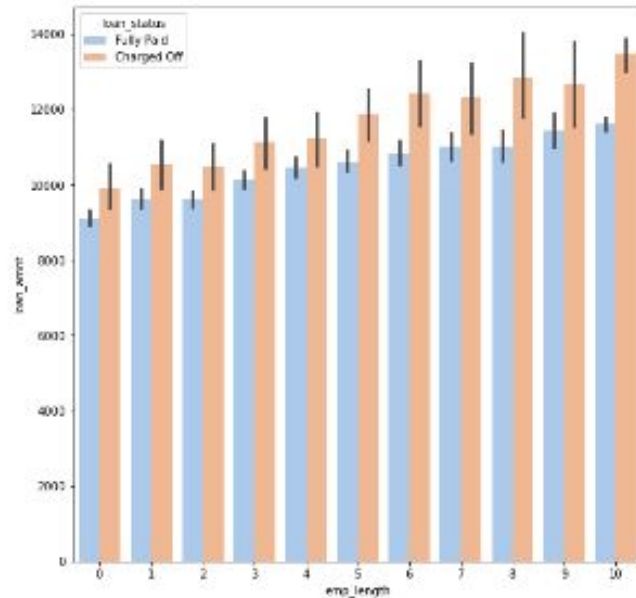
Analysis: Defaulters are when employment length is 10yrs and loan amount is 12k-14k and when the loan is verified and loan amount is above 16k

GRADE VS INT_RATE

Analysis: Defaulters are the applicants in grade G and interest rate above 20%

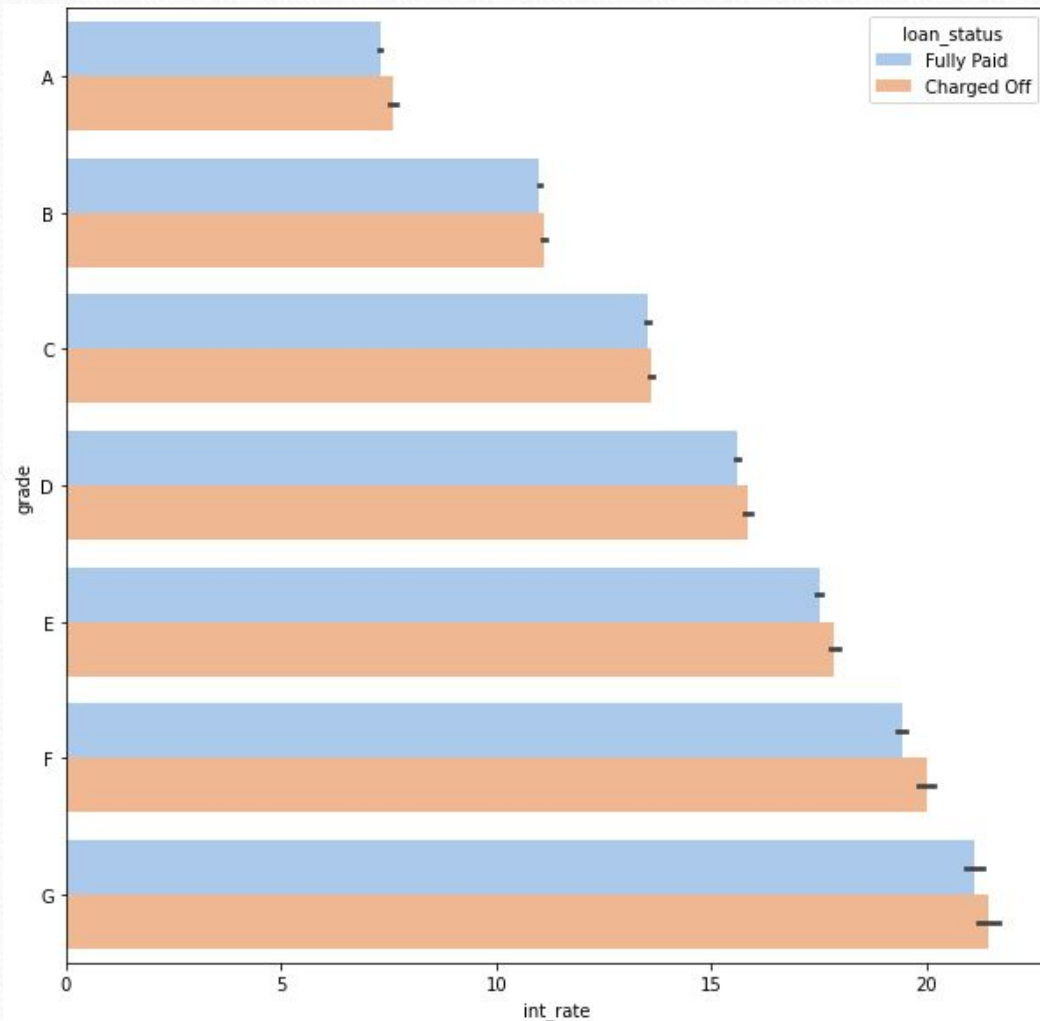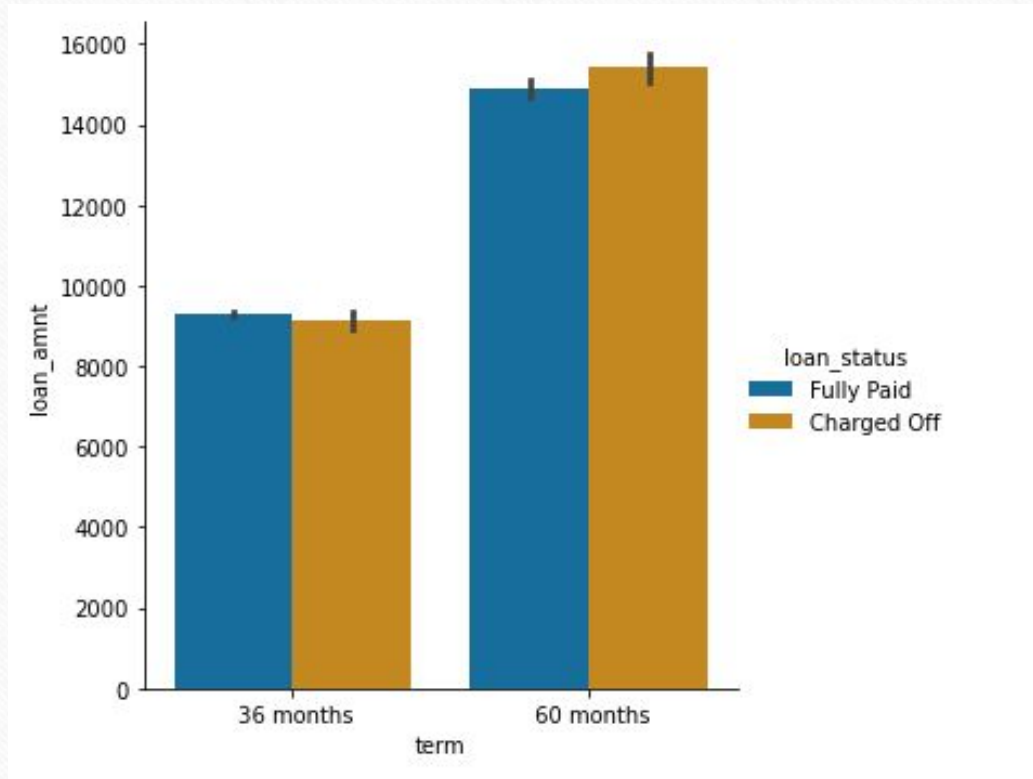# LOAN_AMNT VS TERM

Analysis: Applicants who applied and defaulted have no significant difference in loan_amounts. Which means that applicants applying for long term has applied for more loan.

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 receive interest at the rate of 21-24% and have an income of 70k-80k

• Applicants who have taken a loan in the range 30k - 35k and are charged interest rate of 15-17.5 %

- 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
-
- When grade is F and loan amount is between 15k-20k

- When employment length is 10yrs and loan amount is 12k-14k

- When the loan is verified and loan amount is above 16k

- For grade G and interest rate above 20%

THANK YOU