



# Lending Club Case Study

---

SUBMITTED BY –

- TANISHA LADDHA
- TUSHAR KUMAR

# Irrelevant Data/Columns Removed

---

- delinq\_2yrs
- revol\_bal
- out\_prncp
- total\_pymnt
- total\_rec\_prncp
- total\_rec\_int
- total\_rec\_late\_fee
- recoveries
- collection\_recovery\_fee
- last\_pymnt\_d
- last\_pymnt\_amnt
- next\_pymnt\_d
- chargeoff\_within\_12\_mths
- mths\_since\_last\_delinq
- mths\_since\_last\_record
- funded\_amnt
- out\_prncp\_inv
- total\_pymnt\_inv

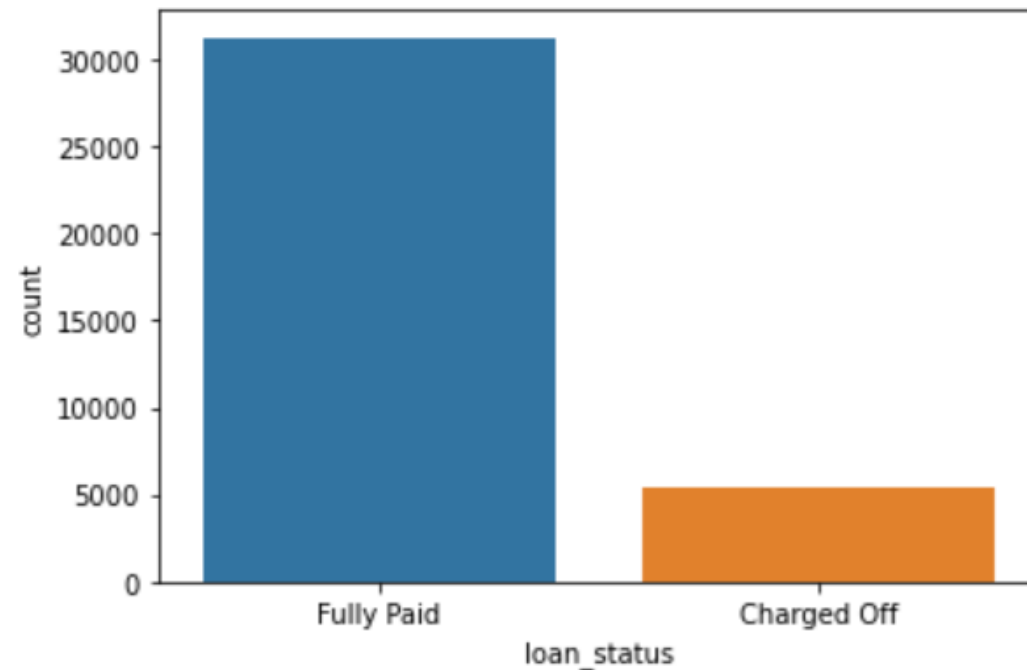
# Irrelevant Data/Columns Removed (Cont.)

---

- Desc
- id
- member\_id
- url
- title
- emp\_title
- zip\_code
- last\_credit\_pull\_d
- addr\_state

---

As most of the loans are fully paid, our analysis is based on charged off to identify if the loan applicant is likely to get defaulted or not.



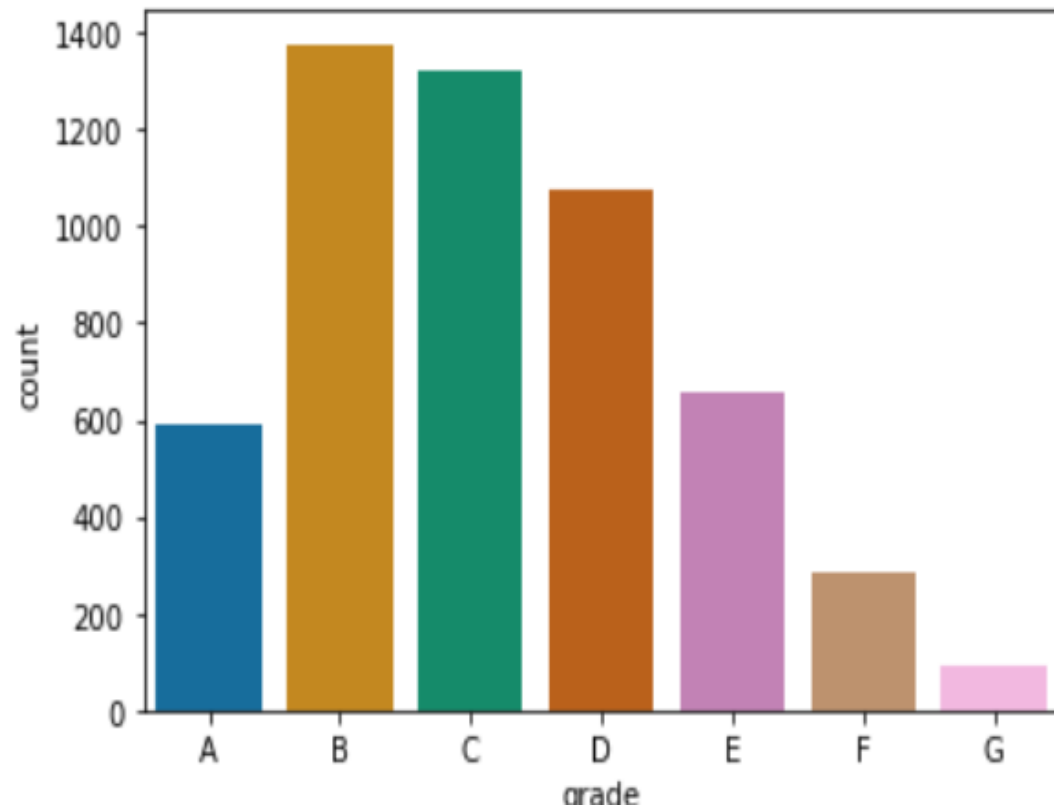
# Univariate and Segmented Univariate Analysis

---

- Grade
  - Purpose
  - Interest Rate
  - Employee Length
  - Annual Income Groups
  - Term
  - Issue Year
  - Issue Month
  - Installment groups
- Dti Groups
  - Funded amount  
investment group
  - Verification Status

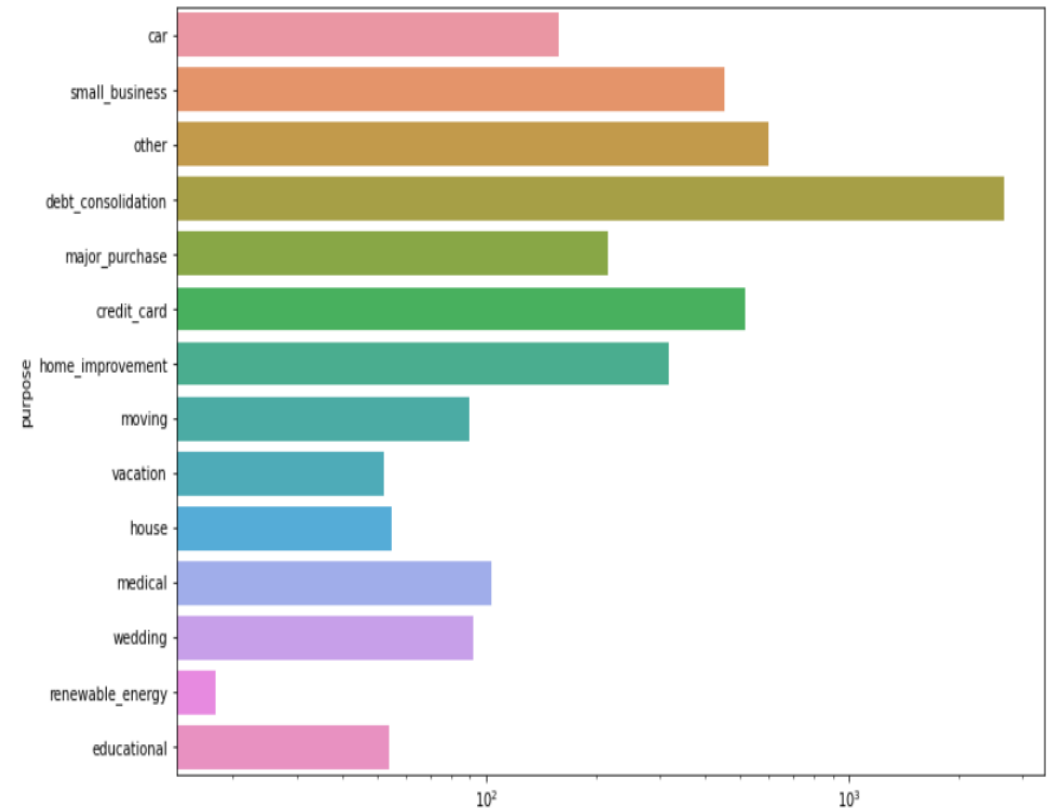
### Grade –

Loan Application is likely to get more defaulted for Grade B



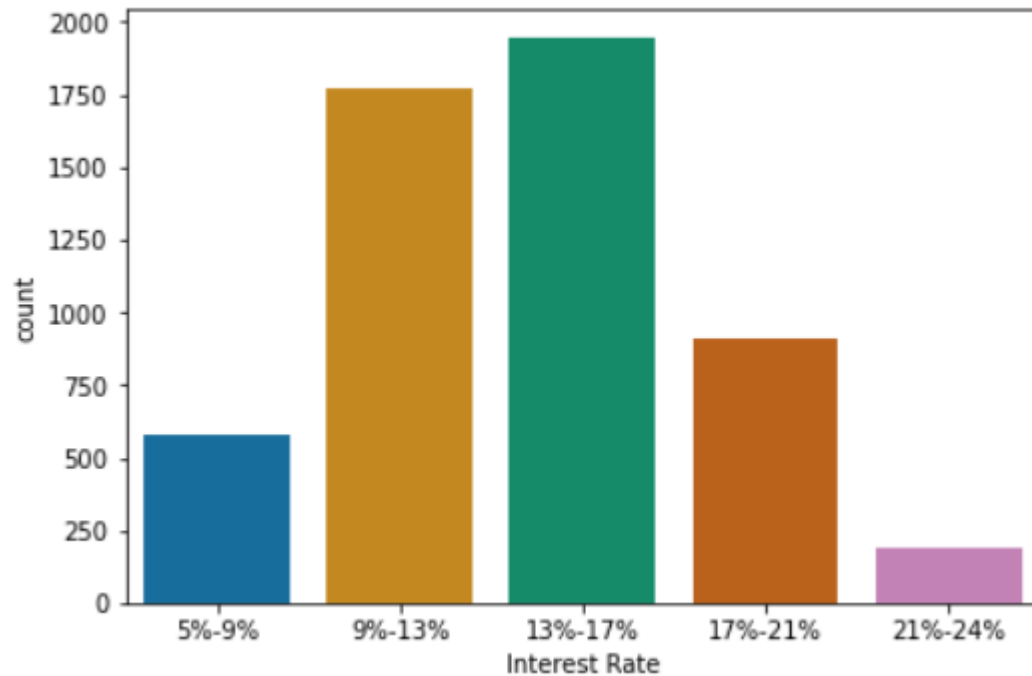
### Purpose –

Most of the loan applications which are defaulted were taken for debt consolidation.



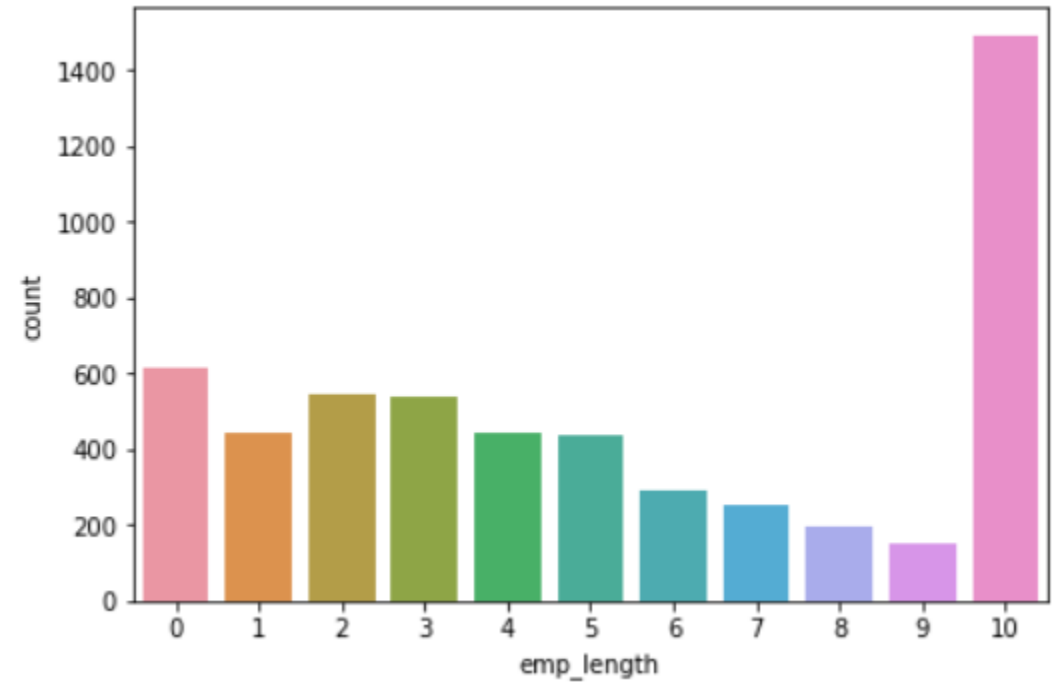
### Interest Rates-

Loan Applications are more likely to get defaulted when the interest rate is 13% to 17%.



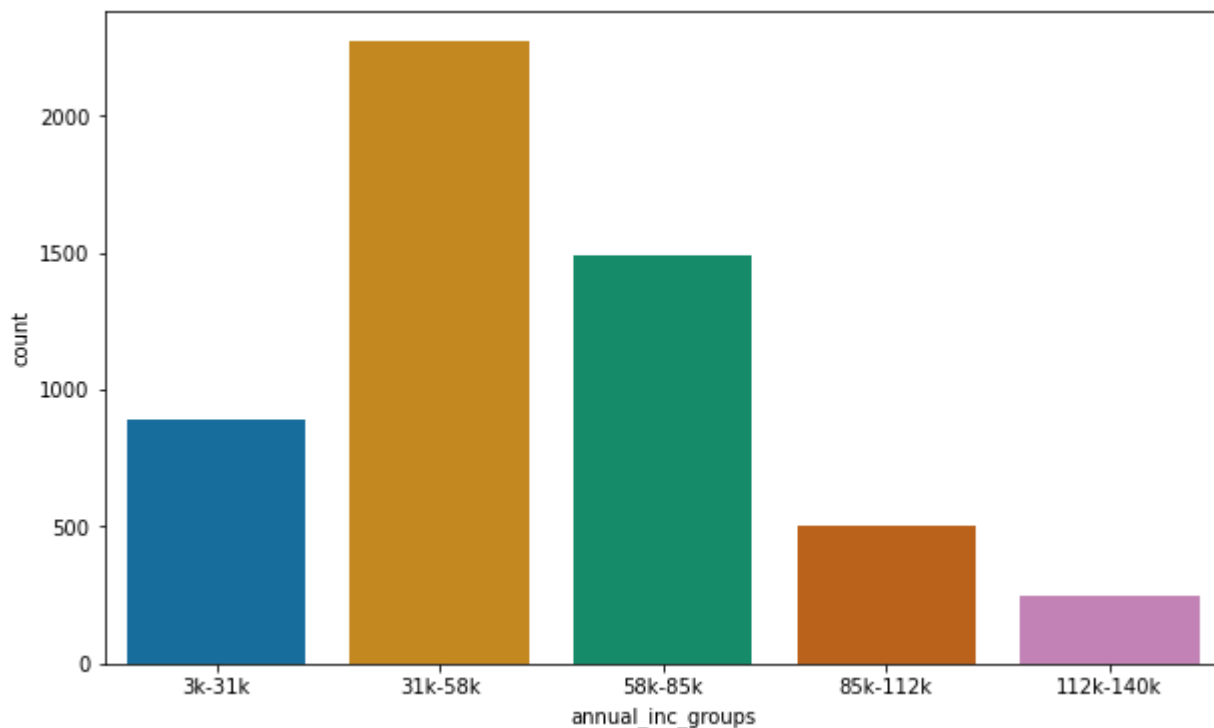
### Employment Length –

Loan applications are likely to get defaulted when employment length is 10 years.



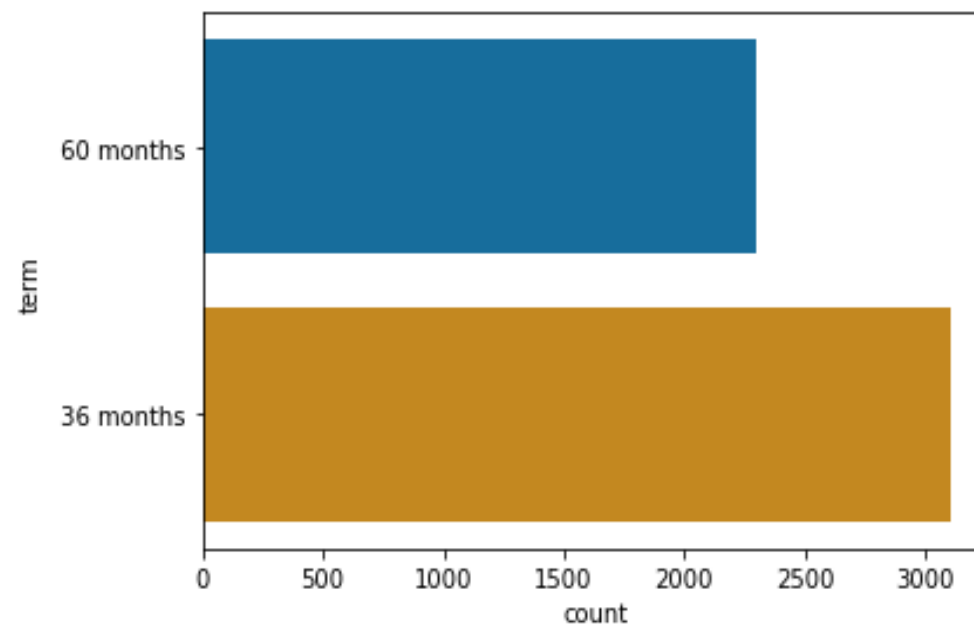
### Annual Income –

Loan Application is likely to get defaulted when annual income is between 31k to 58K



### Term –

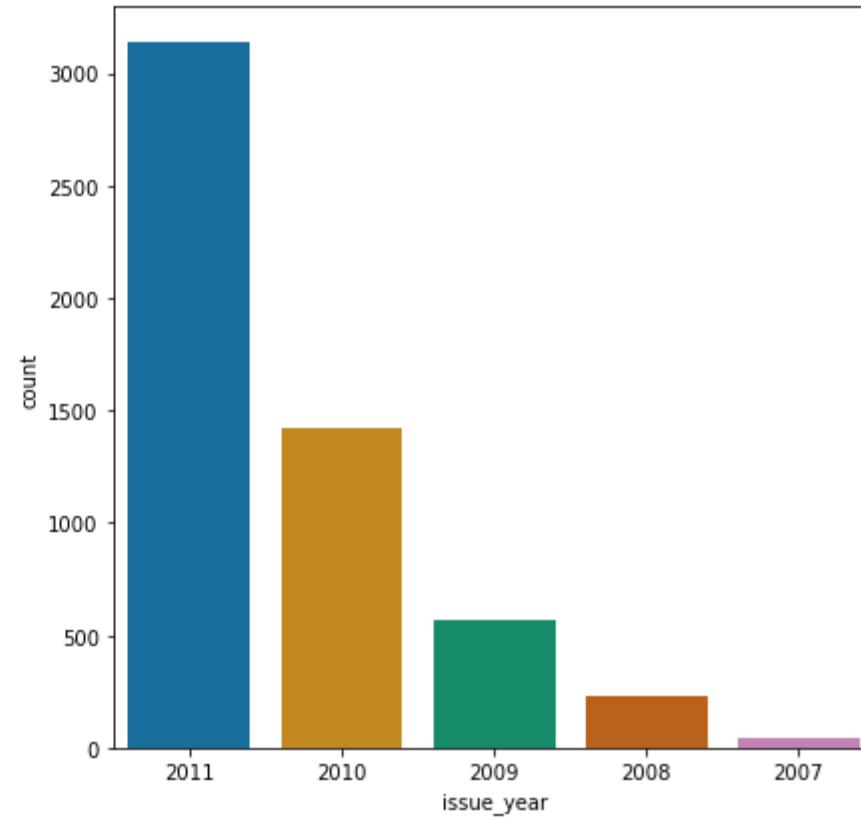
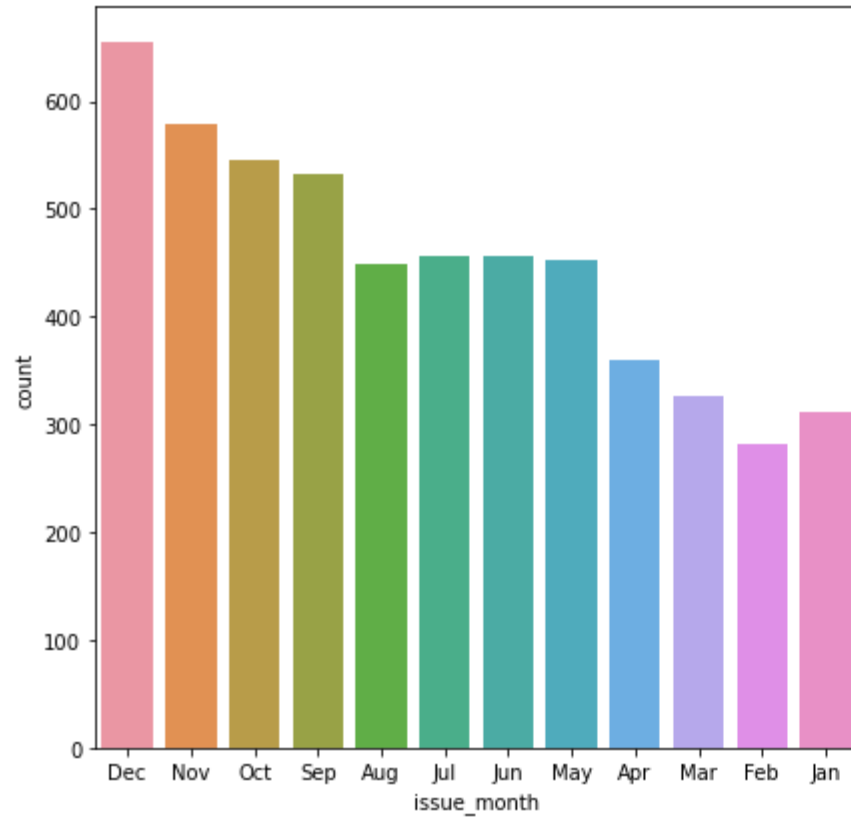
Loan Application Is likely to get defaulted when the term is 36 Months





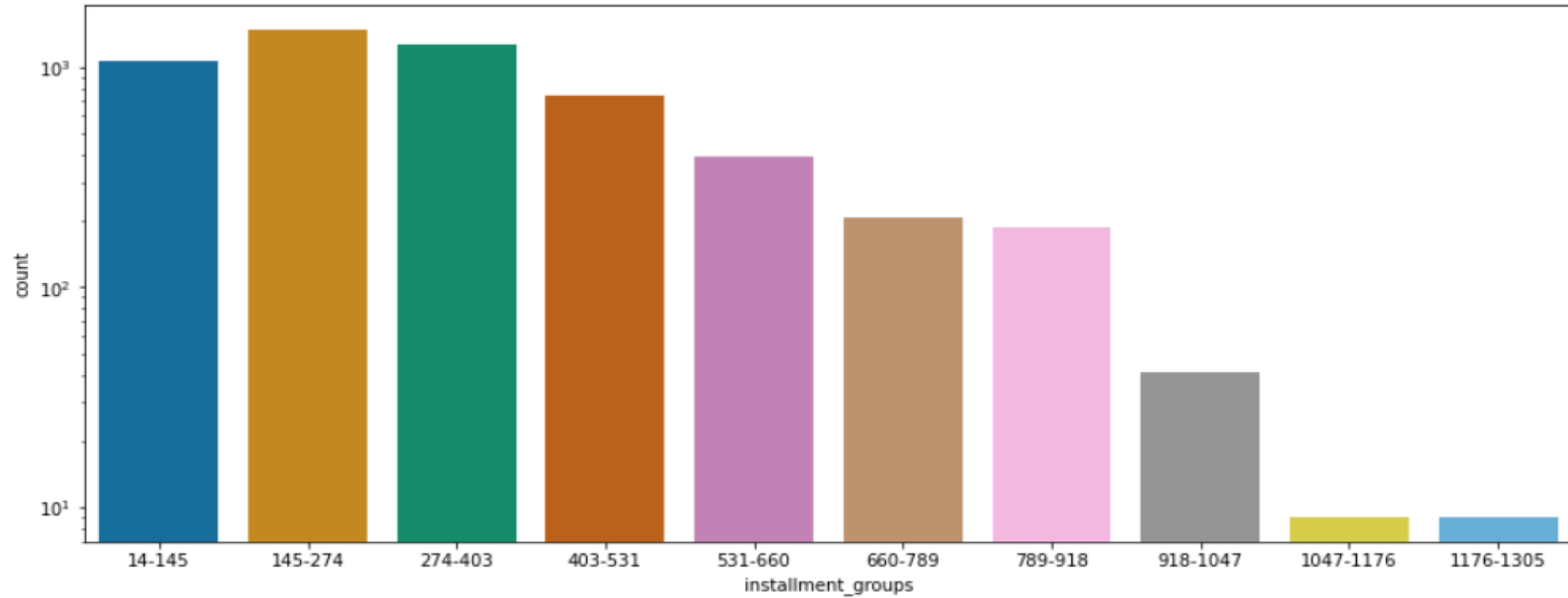
## Analysis based on Issue Year and Issue Month –

The loan Applications are likely to get defaulted when they are taken in end of the year



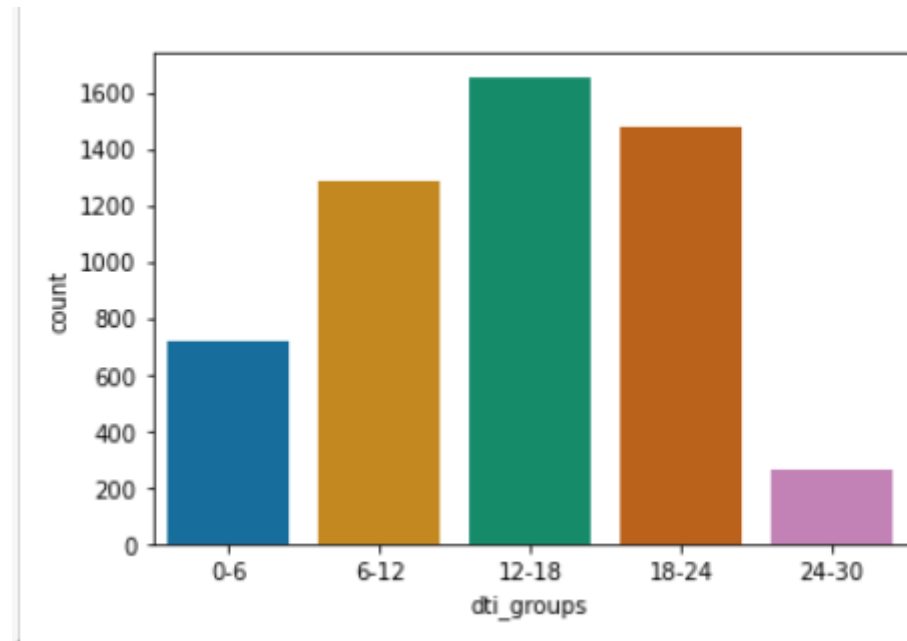
## Installment –

Loan Applications are likely to get defaulted when loan applications are between 145 to 274



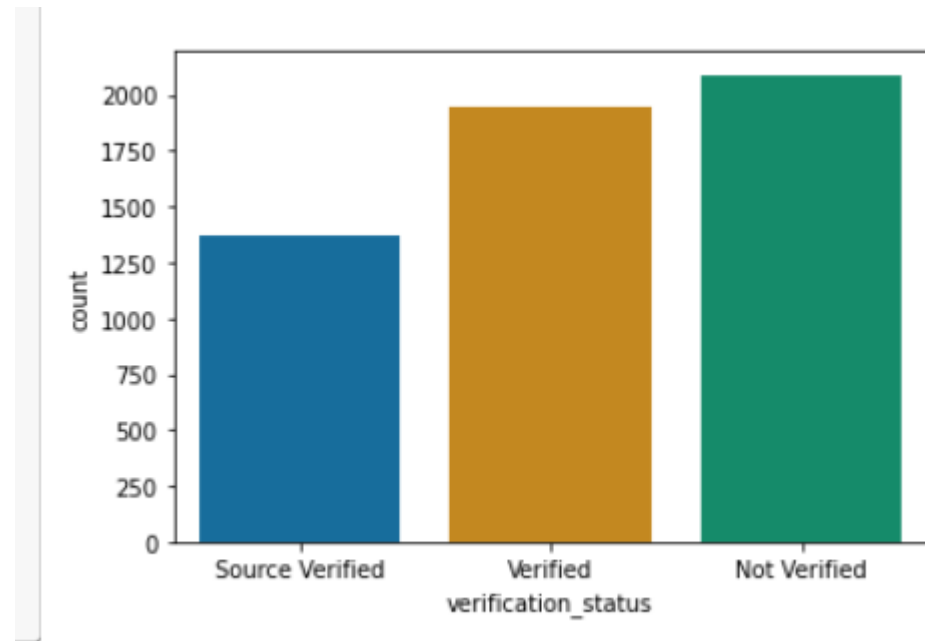
### Dti –

Loan application is likely to get defaulted when dti group is between 12 to 18



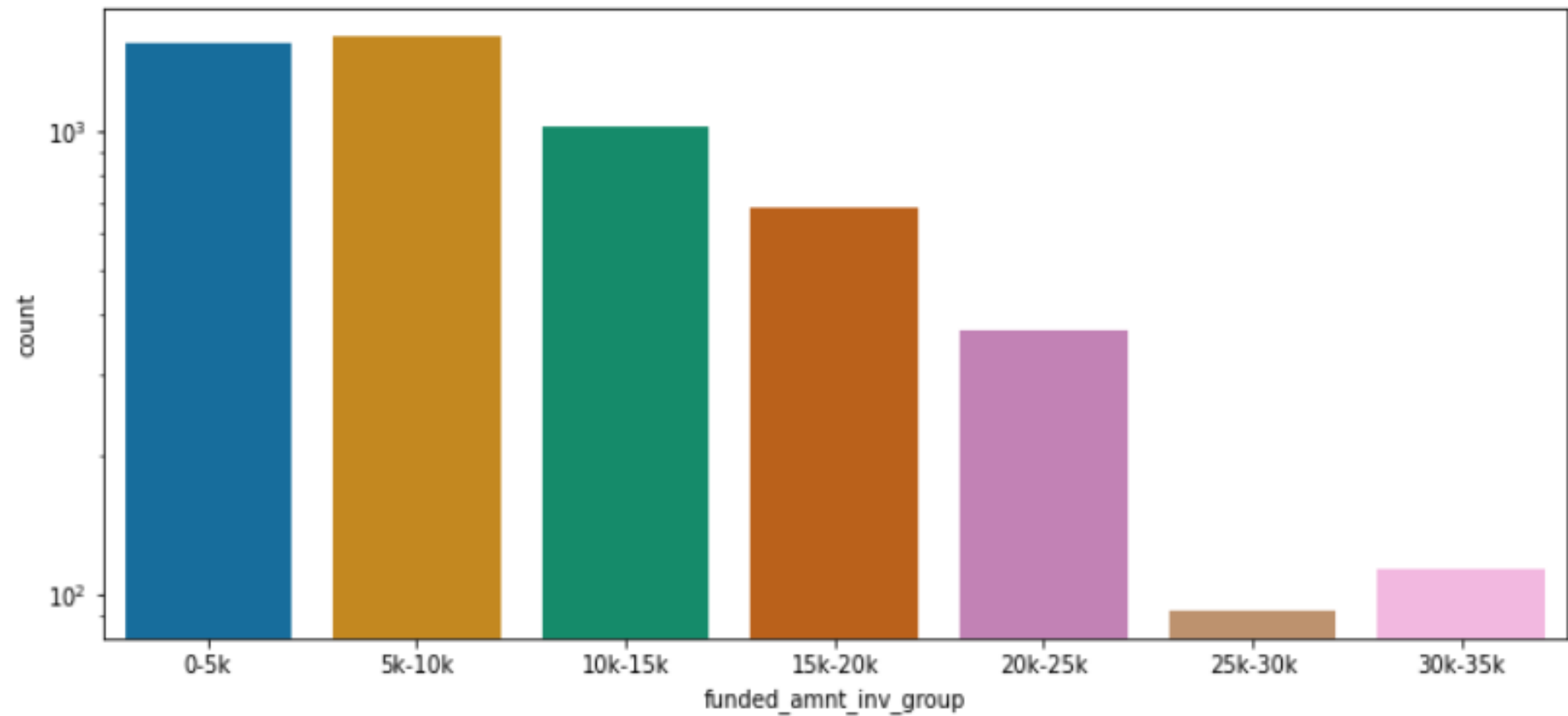
### Verification Status-

Loan application is likely to get more defaulted when the application is not verified



**Loan Amount funded by investor –**

Loan application is likely to get defaulted when the funded loan amount is between 5k to 10K



# BIVARIATE ANALYSIS

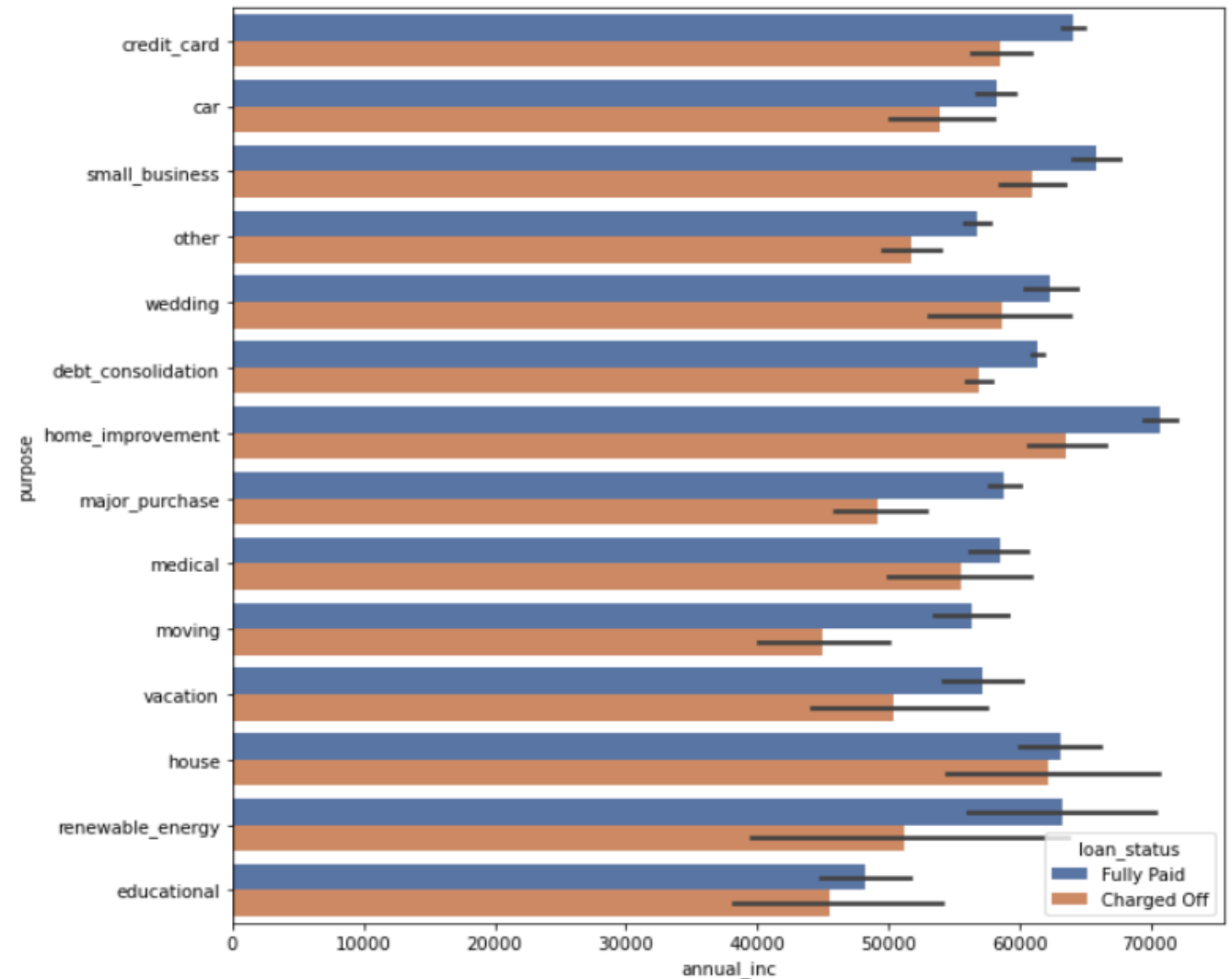
---

- Annual income vs loan purpose
- Annual income vs home ownership
- Annual income vs Loan amount
- Annual income vs Interest Rate
- Loan Amount with Interest Rate
- Loan Amount vs Loan Purpose
- Loan vs House Ownership
- Loan amount vs Grade
- Loan Amount with Term
- Loan Amount with Employee Length and Verification Status

## Annual income vs Loan purpose

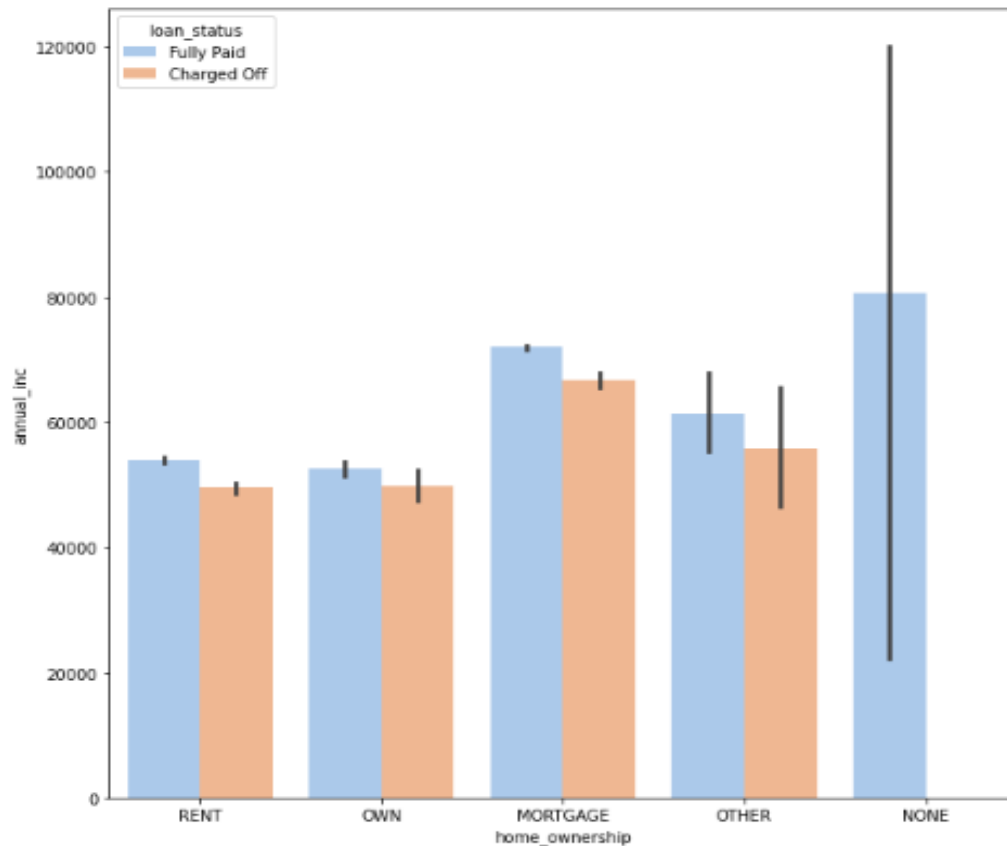
Applicants with higher salary mostly applied loans for "home\_improvement", "house", "renewable\_energy" and "small\_businesses".

Loan applications likely to get defaulted when Applicants taking loan for 'home improvement' and have income of 60k -70k



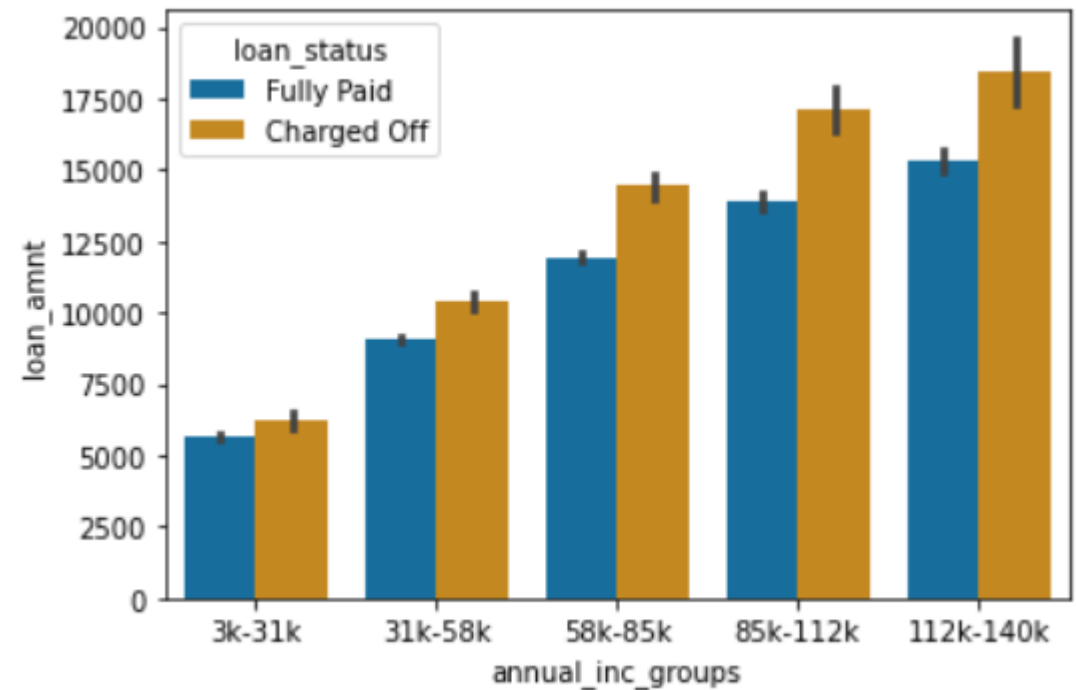
## Annual Income vs Home Ownership

Loan Applications whose home ownership is 'MORTGAGE' and have income of 60-70k likely to get defaulted.



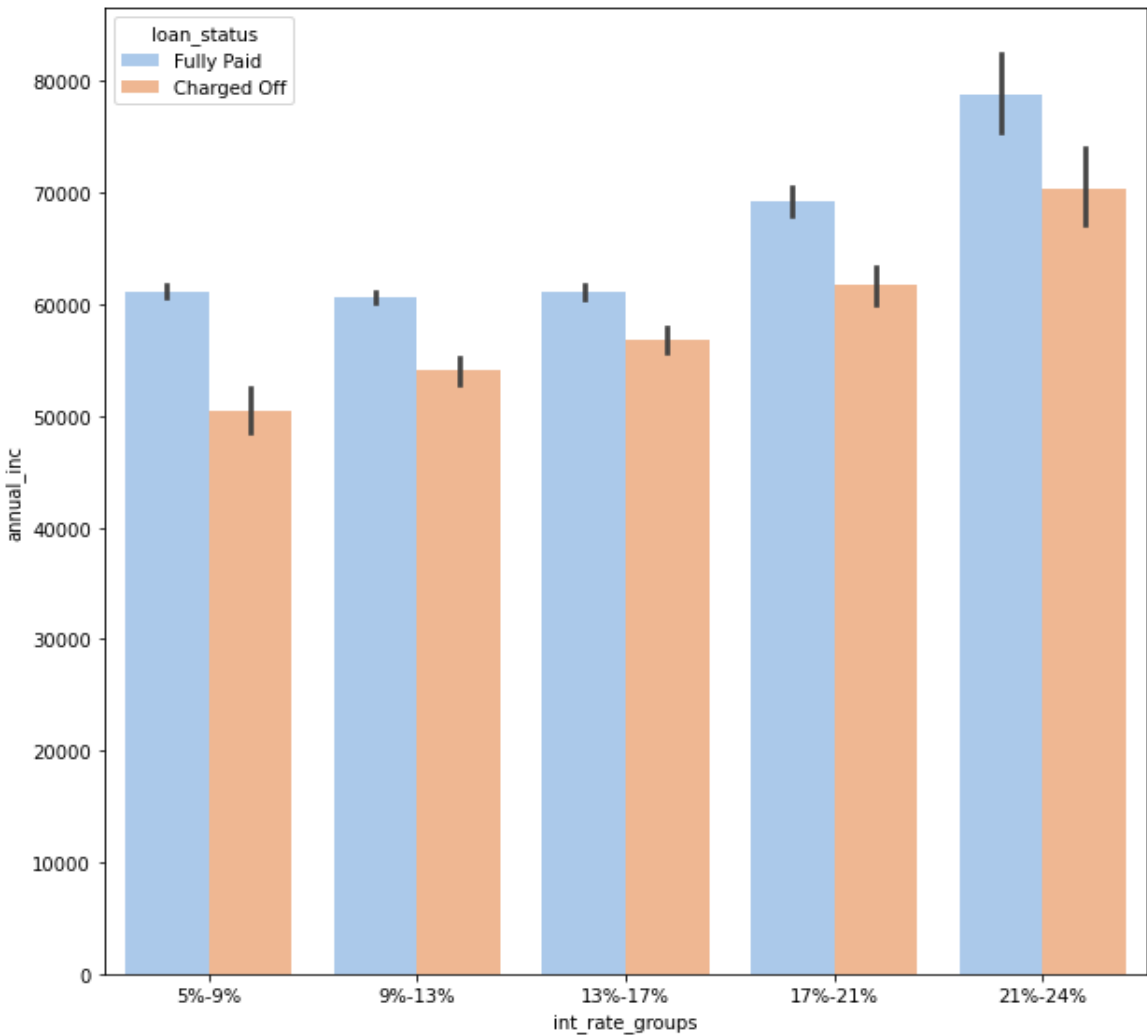
## Annual Income vs Loan Amount

Loan Applications where loan amount is between 17.5k to 20k an Annual income is 112k to 140k likely to get defaulted



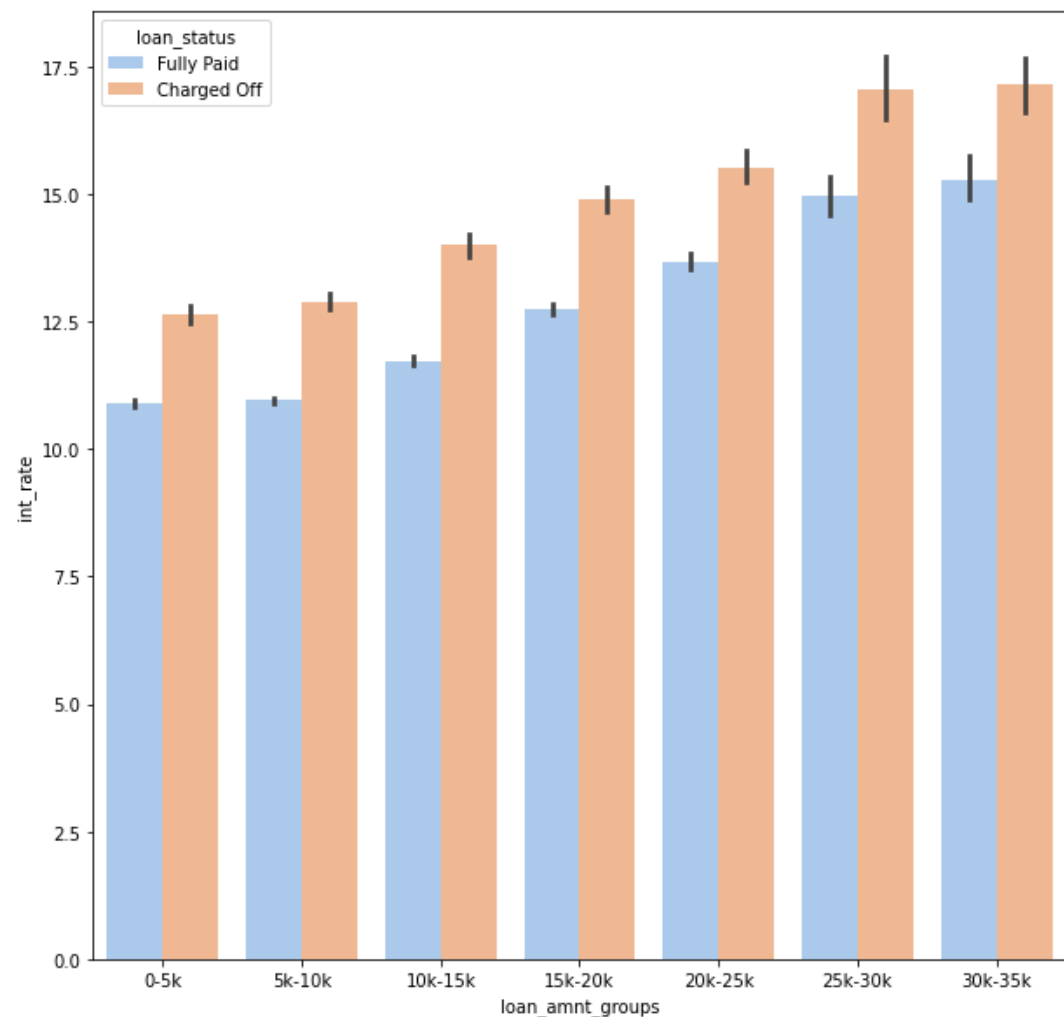
## Annual Income Vs Interest Rate

Loan applications who receive interest at the rate of 21-24% and have an income of 70k-80k likely to get Defaulted.



## Loan Amount with Interest Rate

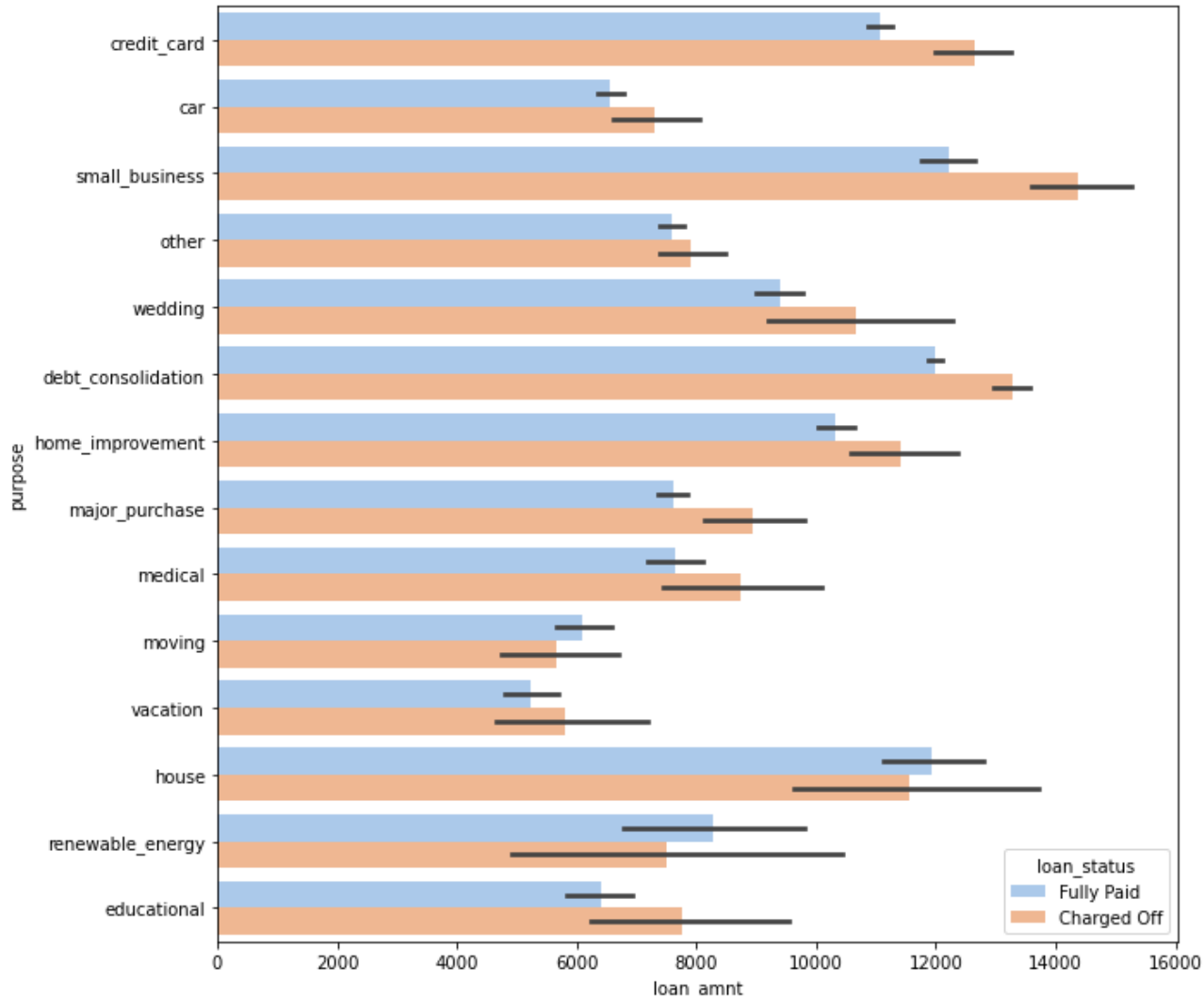
Loan applications with loan amount of 30k - 35k and are charged interest rate of 15-17.5% likely to get defaulted.





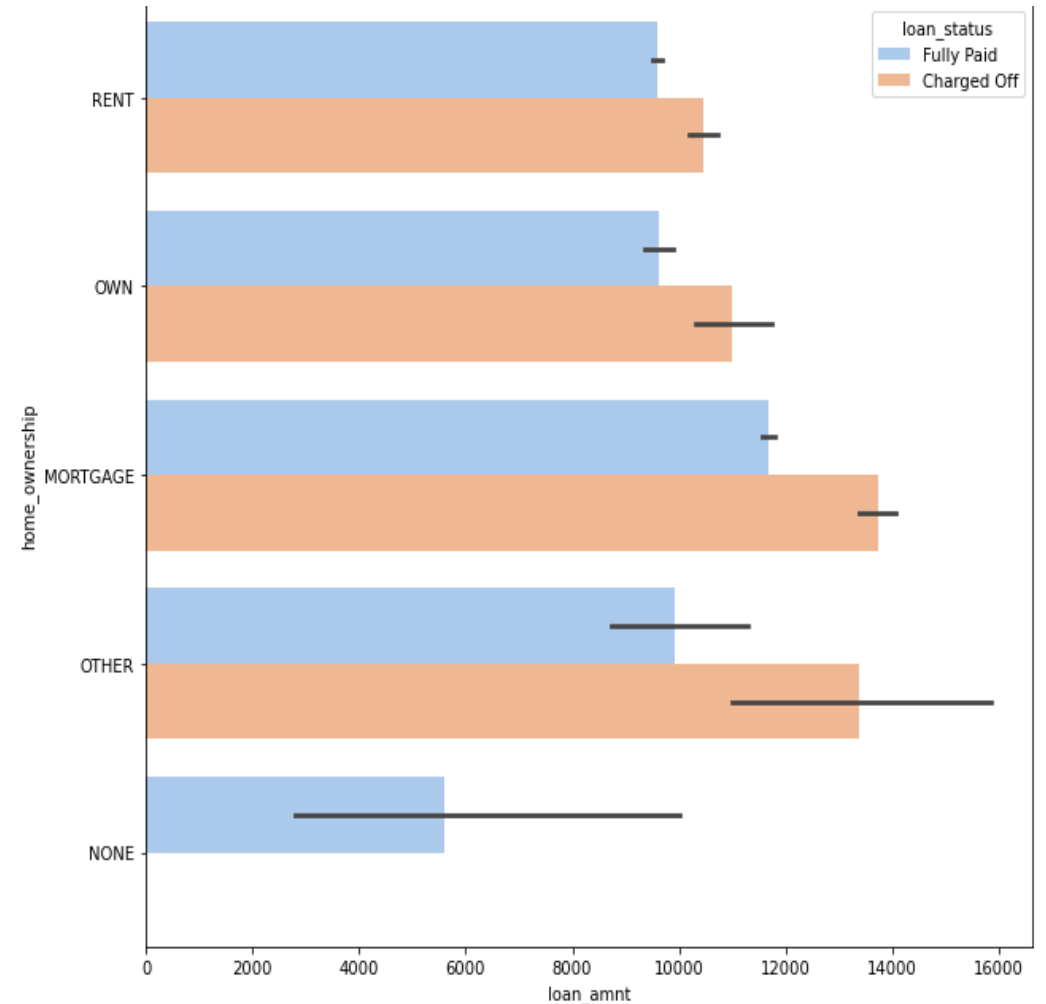
## Loan Amount vs Loan Purpose-

Loan applications for small business and amount is greater than 14k are likely to get defaulted.



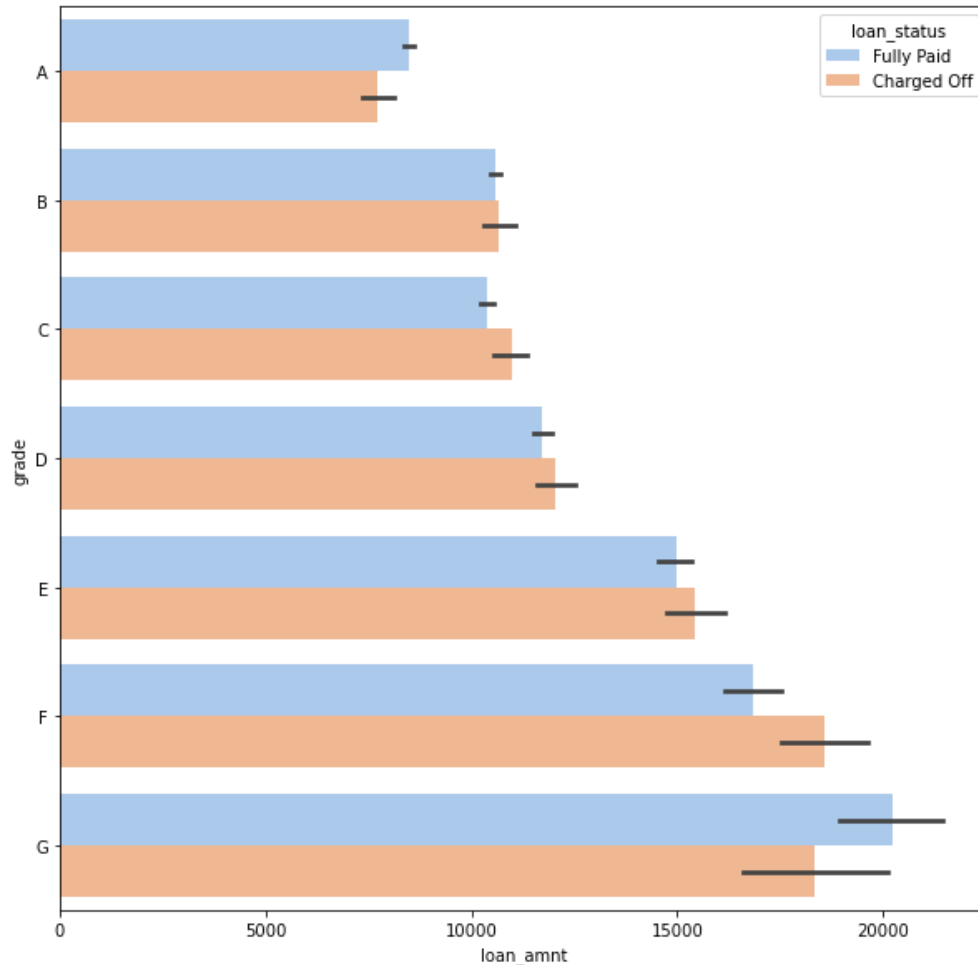
## Loan Amount vs House Ownership-

Loan applications where home ownership is mortgage and loan amount is 12k to 14k likely to get more defaulted



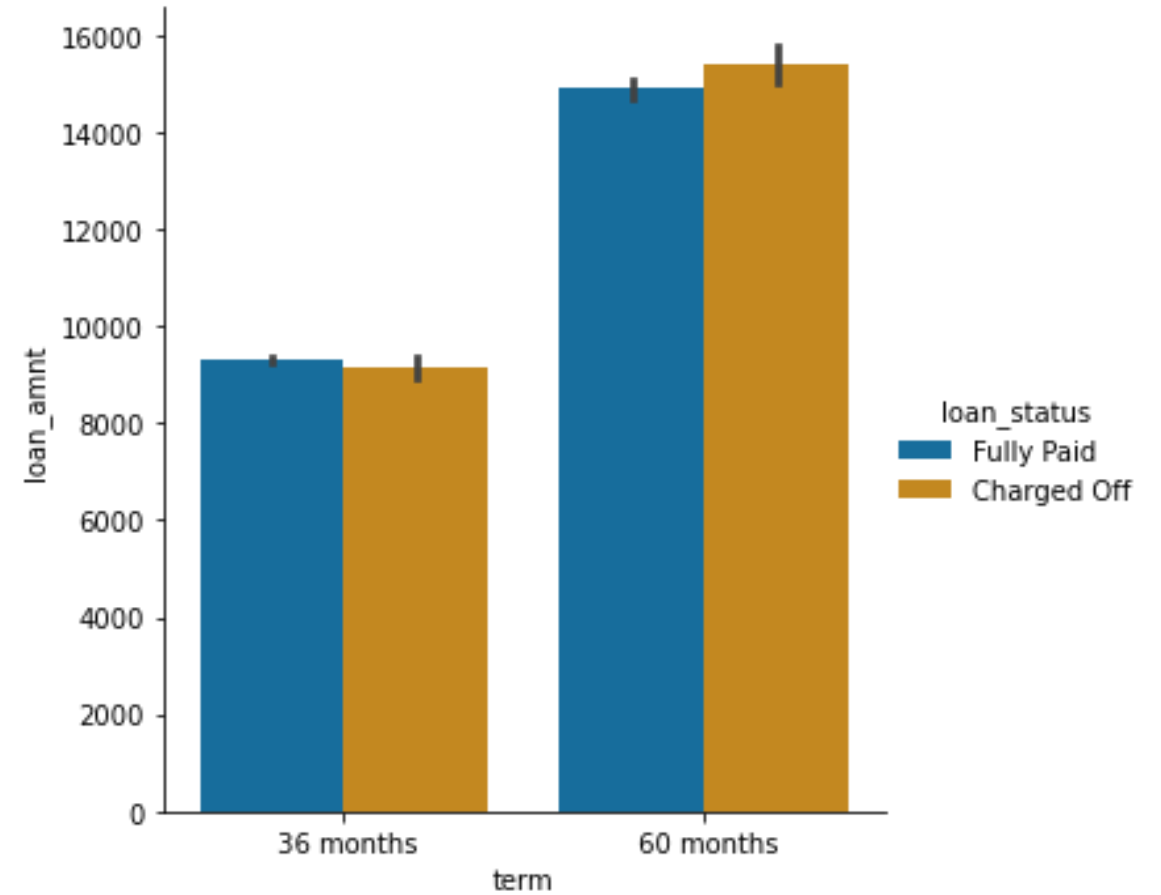
## Loan Amount Vs Grade –

Loan application where grade is 'F' an loan amount >15k are more likely to get defaulted



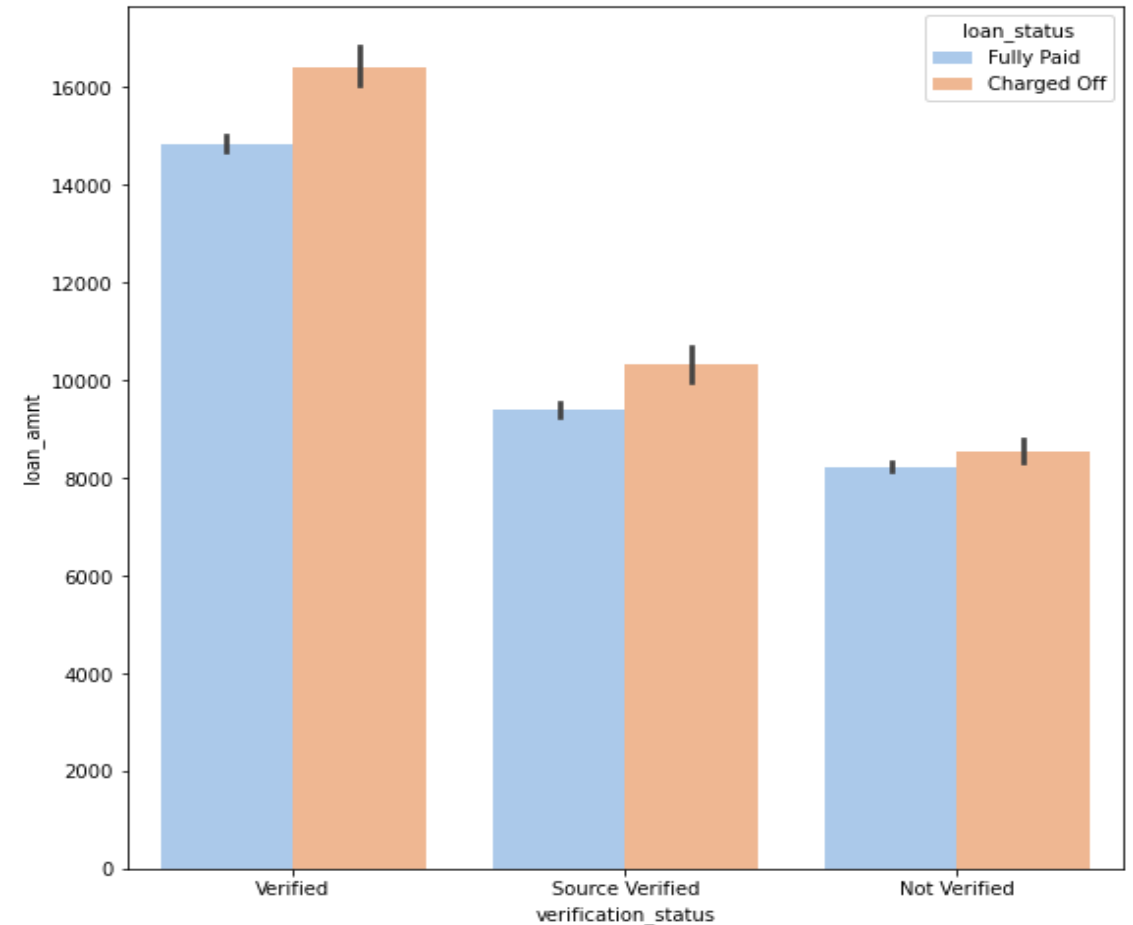
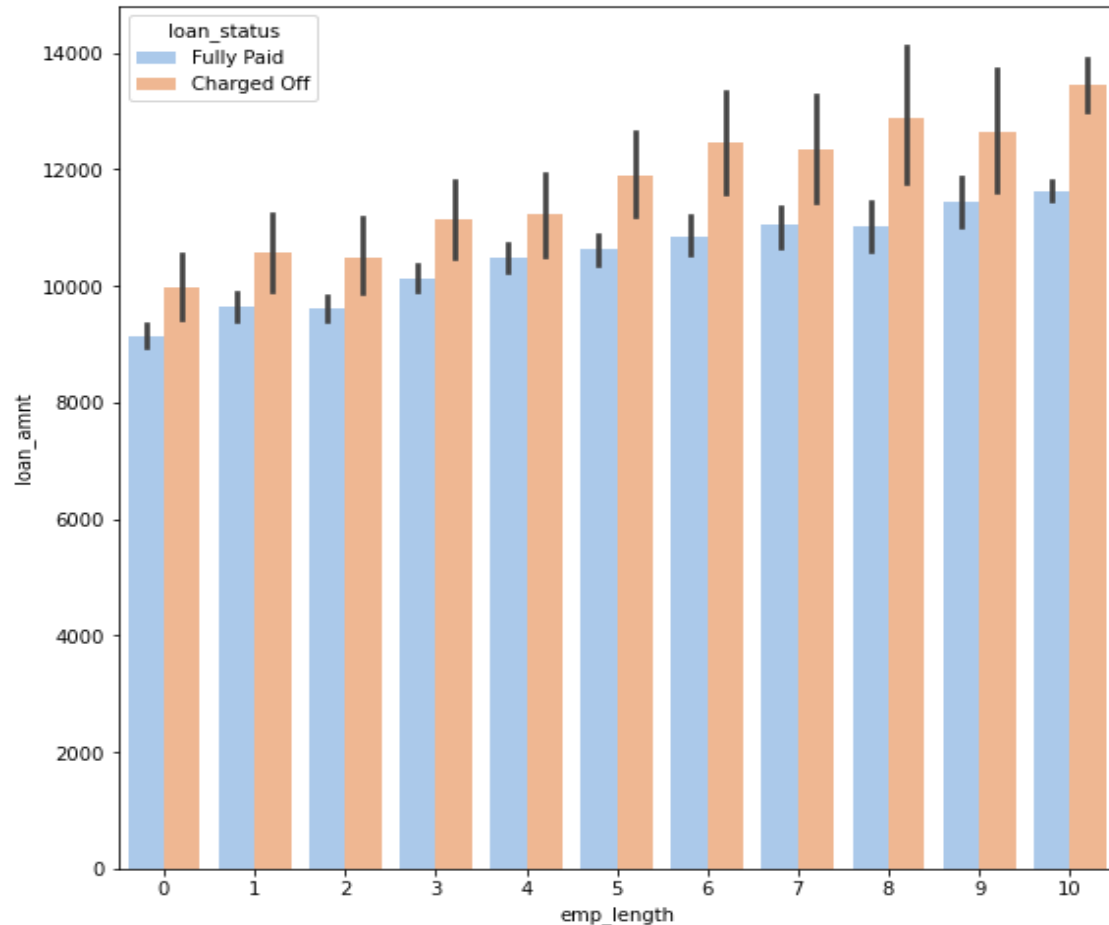
## Loan amount with term-

- No significant difference in loan amount for defaulters
- Applicants applying for long term has applied for more loan



## Loan Amount with Employee Length and Verification Status -

- Employees with more employment length, got loan approved for high amount.
- Higher loan amount applications are more verified, which means company could be verifying high loan amount application first
- When employment length is 10yrs and loan amount is 12k-14k, the application is likely to be defaulted
- When the loan is verified and loan amount is above 16k, the application is likely to be defaulted



**Thank You!**