

# LENDING CLUB CASE STUDY

Group Members:-

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Harsh Pandya

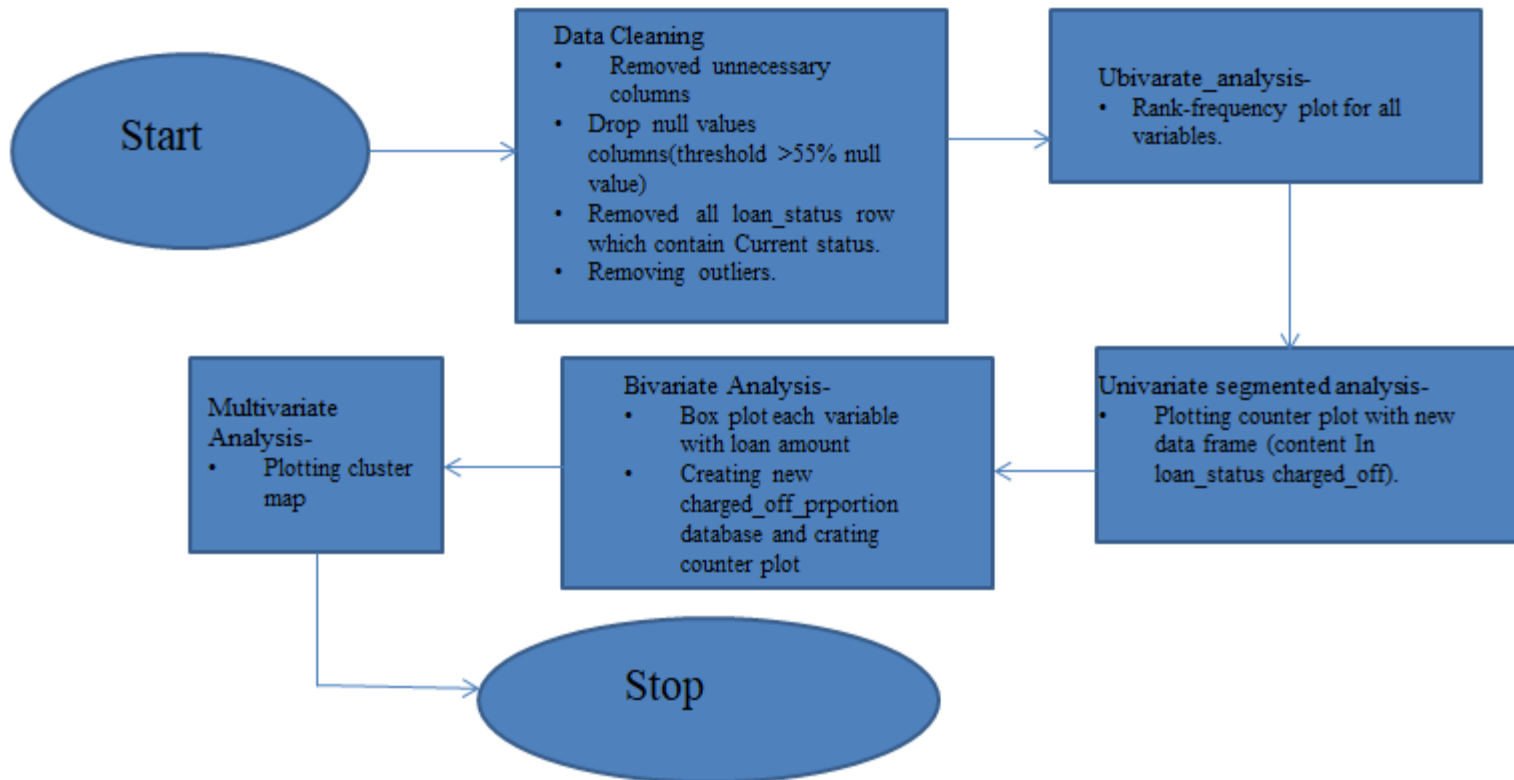
# PROBLEM STATEMENT

- Lending Club is a **consumer finance company** which specialises in lending various types of loans to urban customers. 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.

# ANALYSIS APPROACH



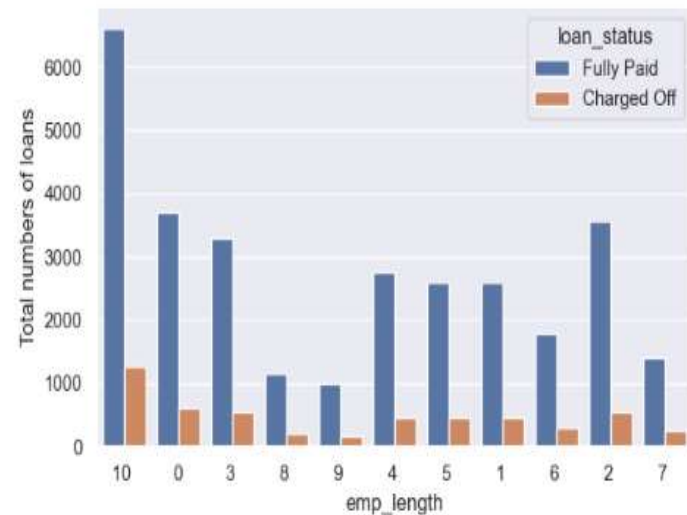
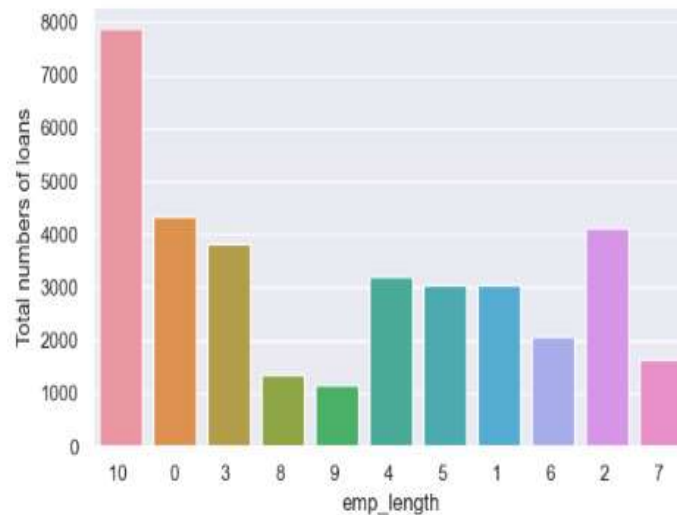
# WORK EXPERIENCE

## Observation:

- More than 10 years experience employee have majority borrower
- More than 10 years employee charged off in majority

name: emp\_length, dtype: int64

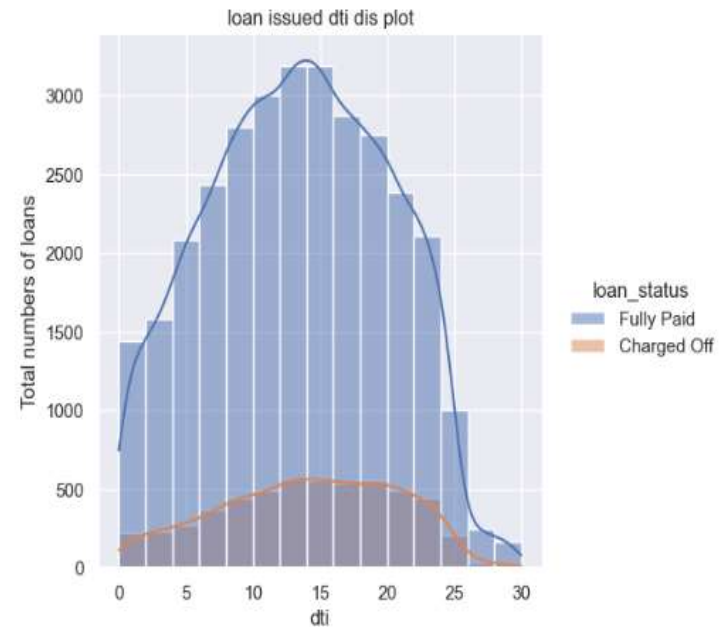
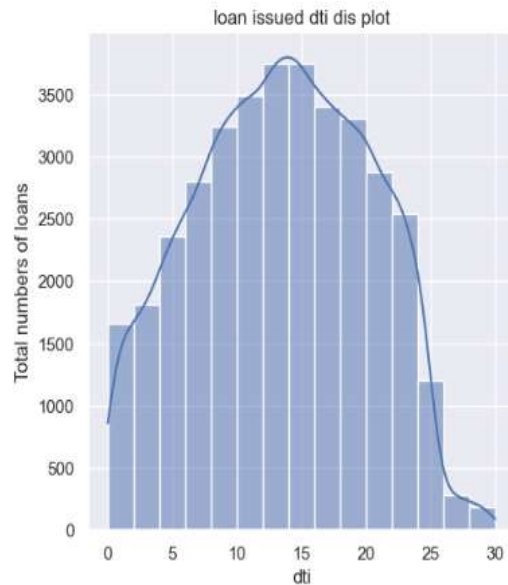
loan issued emp\_length count plot



# DTI RATIO

## Observation:

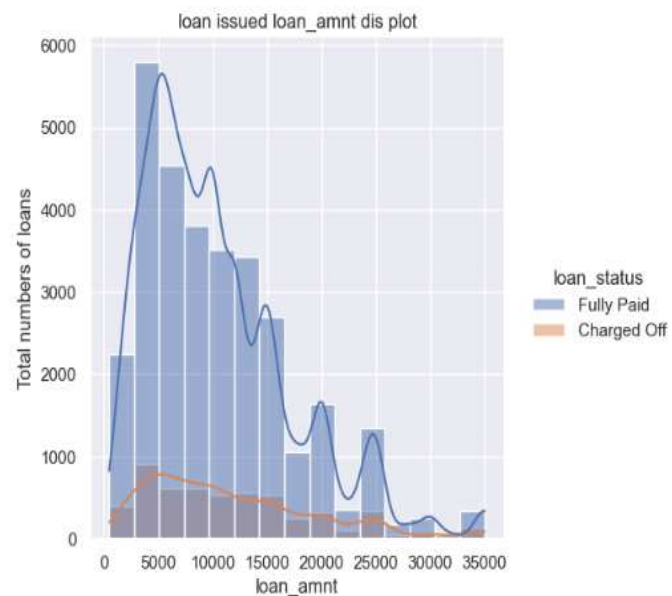
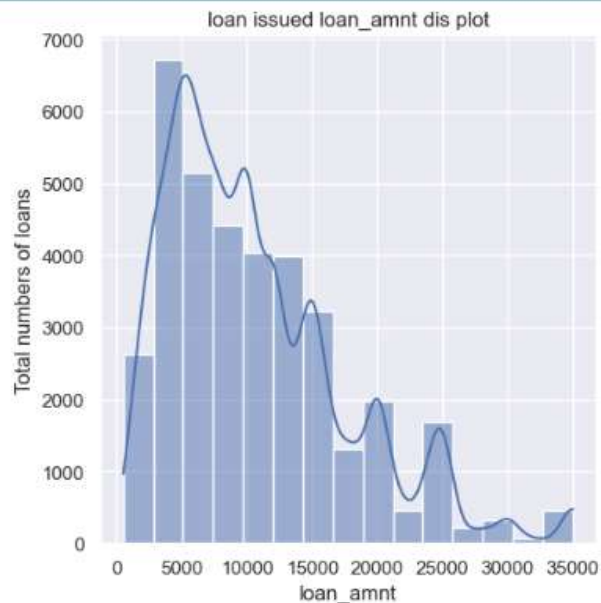
- Majority of borrowers have greeter debit respect to monthly earnings for dti ratio in between 9 to 16 and those are also in majority of charged off.



# LOAN AMOUNT

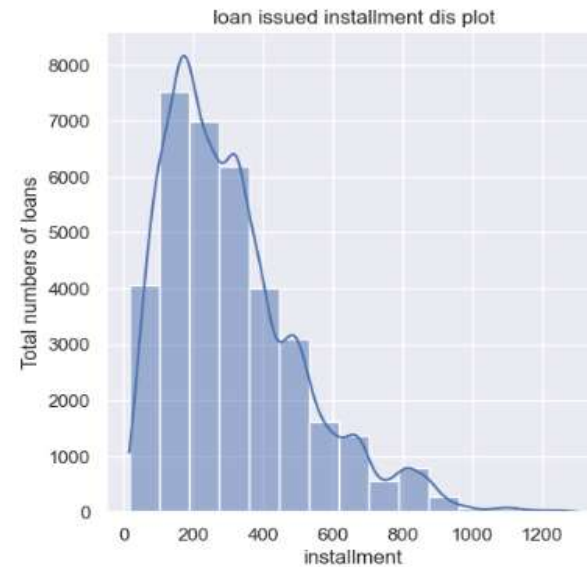
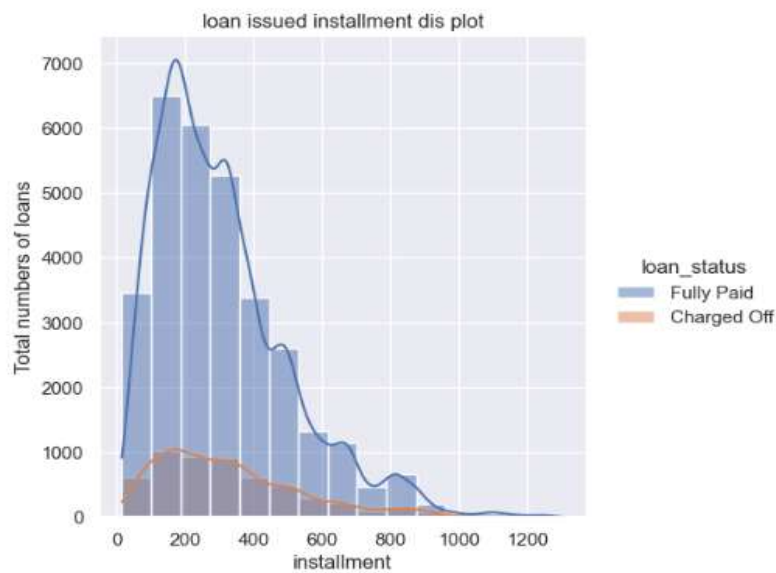
## Observation:

- Majority of borrowers applied for loan amount between 5k to 15k majority of charged off which applied for loan amount 4k to 12k



# INSTALMENT

- **Observation:**
- From Instalment data, we can say that most of them have taken loan who paying instalment in-between 200 to 400.
- Charged Off loan status is also high for same range(200-400)

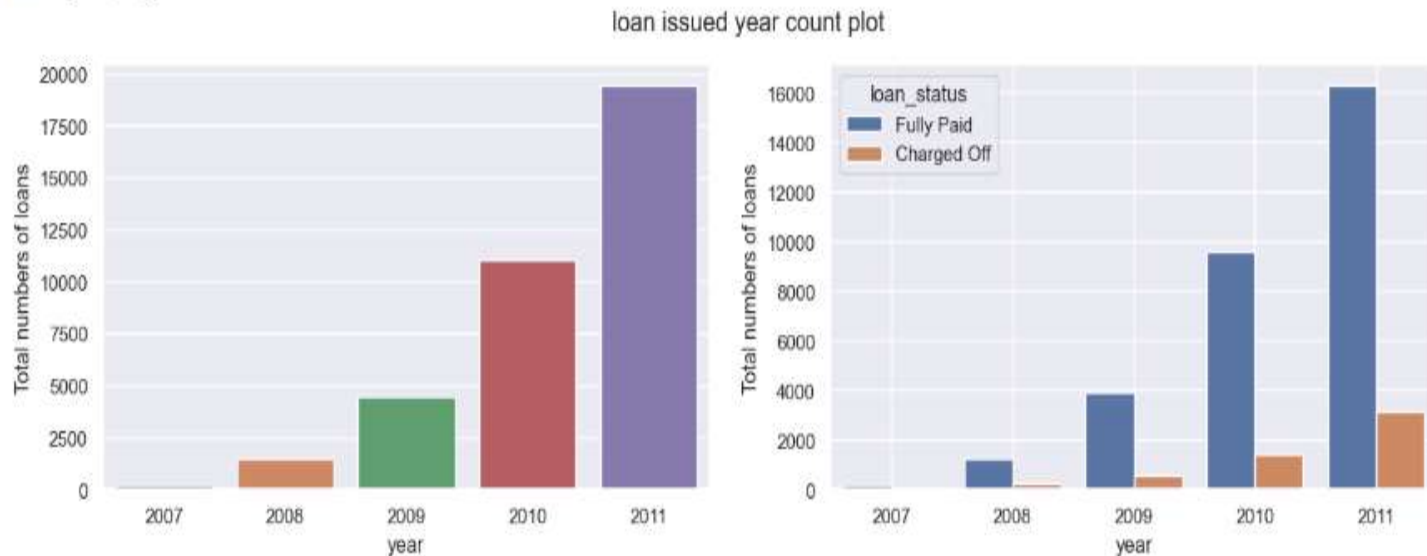


# LOAN ISSUED YEAR

## Observation:

- From year wise data, we can say that most of them have taken loan in year 2011 and its increasing from 2007 to 2011 continuously
- Charged Off loan status is also high for same year

Name: year, dtype: int64

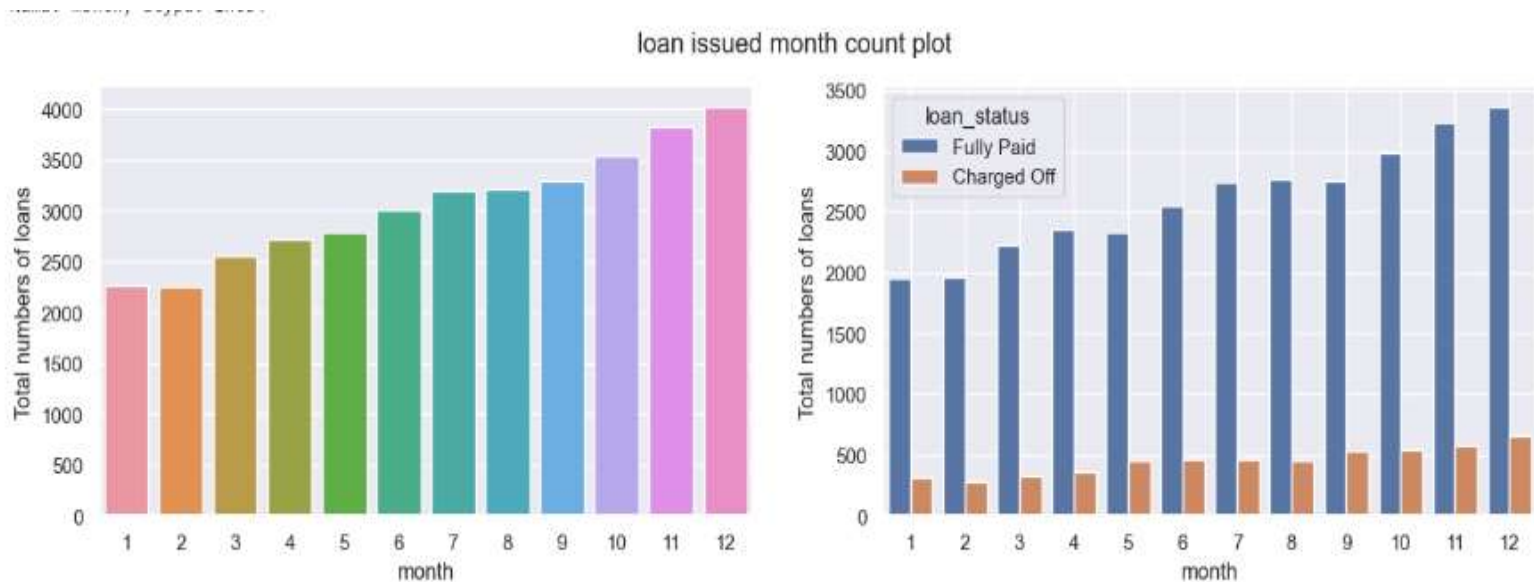




# LOAN ISSUED MONTH

## Observation:

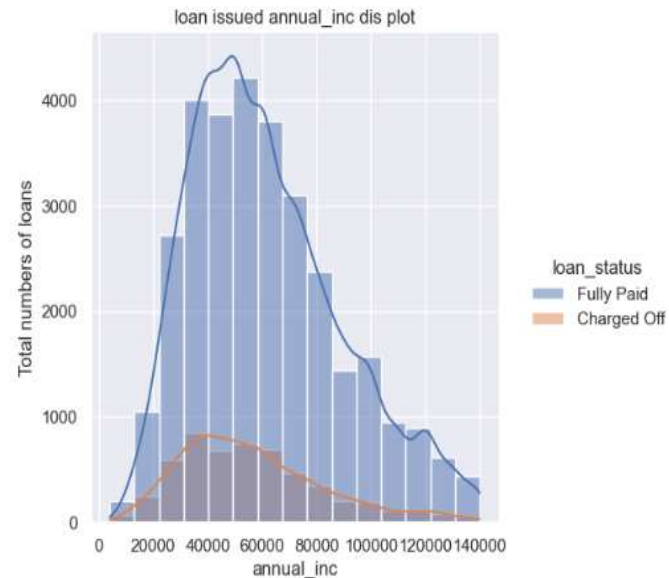
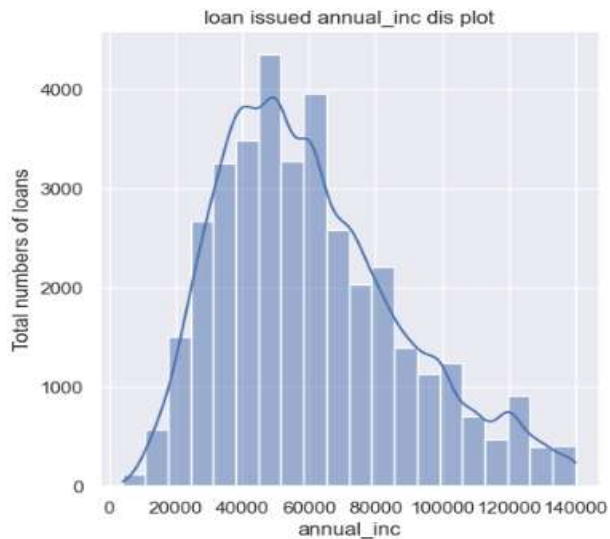
- From monthly wise data, we can say that most of them have taken loan in year's last months.
- Charged Off loan status is also high for the end of the months



# ANNUAL INCOME

## Observation:

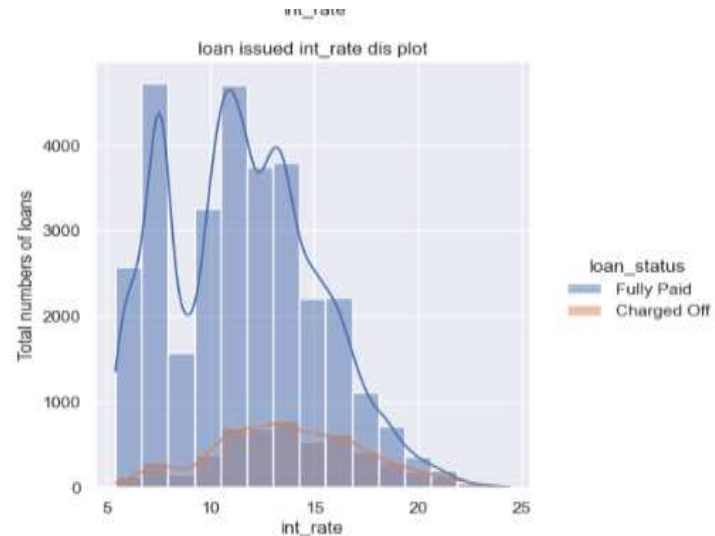
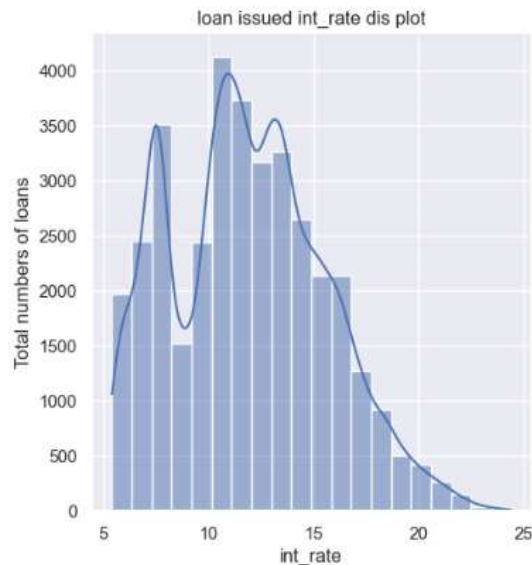
- Most of people taking loan which have lower(30k-80k) income and these chances have most probably to charged off respect to higher annual income



# INTEREST RATE

## Observation:

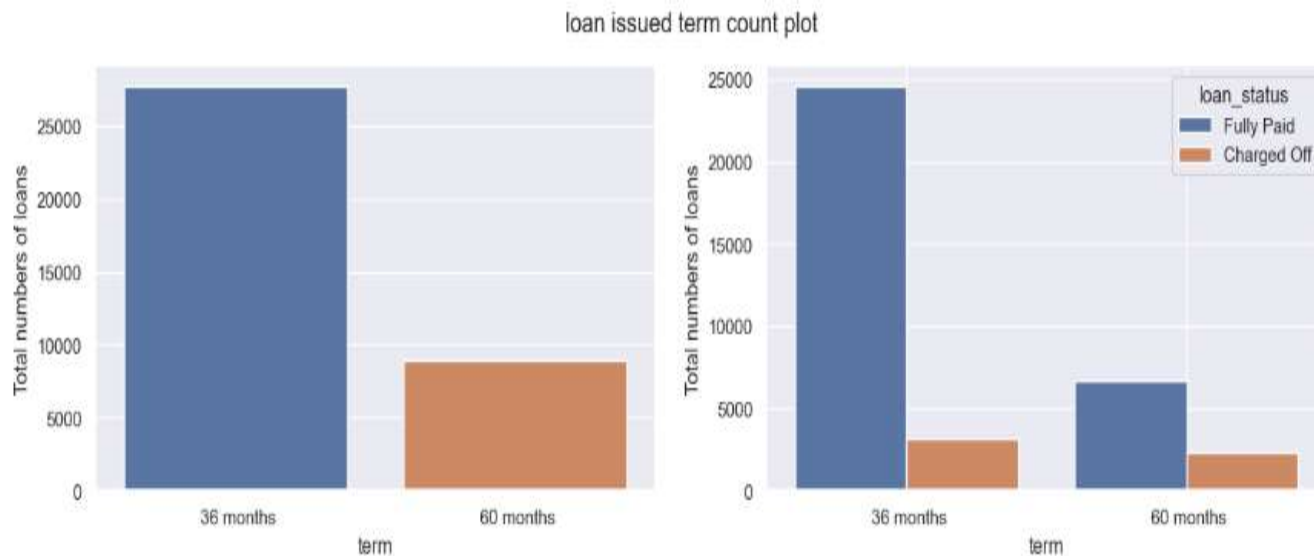
- Borrowers no. increased between 5 to 8 and 10 to 15 but its going down in between 8 to 10. And same followings for charged off.



# TERM

## Observation:

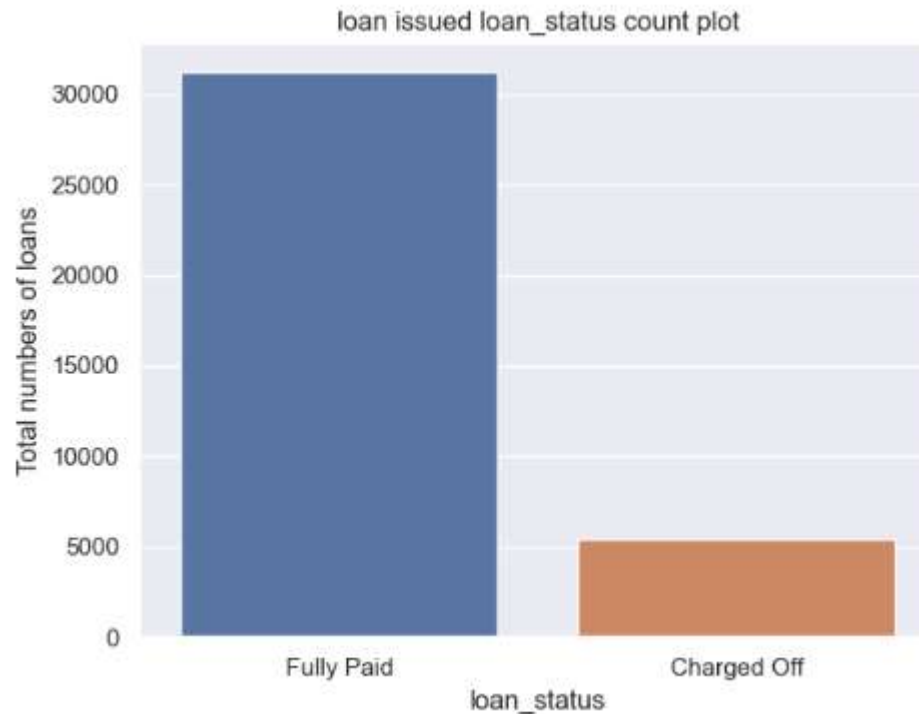
- Majority of borrowers taken loan for 36 months and most chances of charged off is taken loan for 60 months



# LOAN STATUS

## Observation:

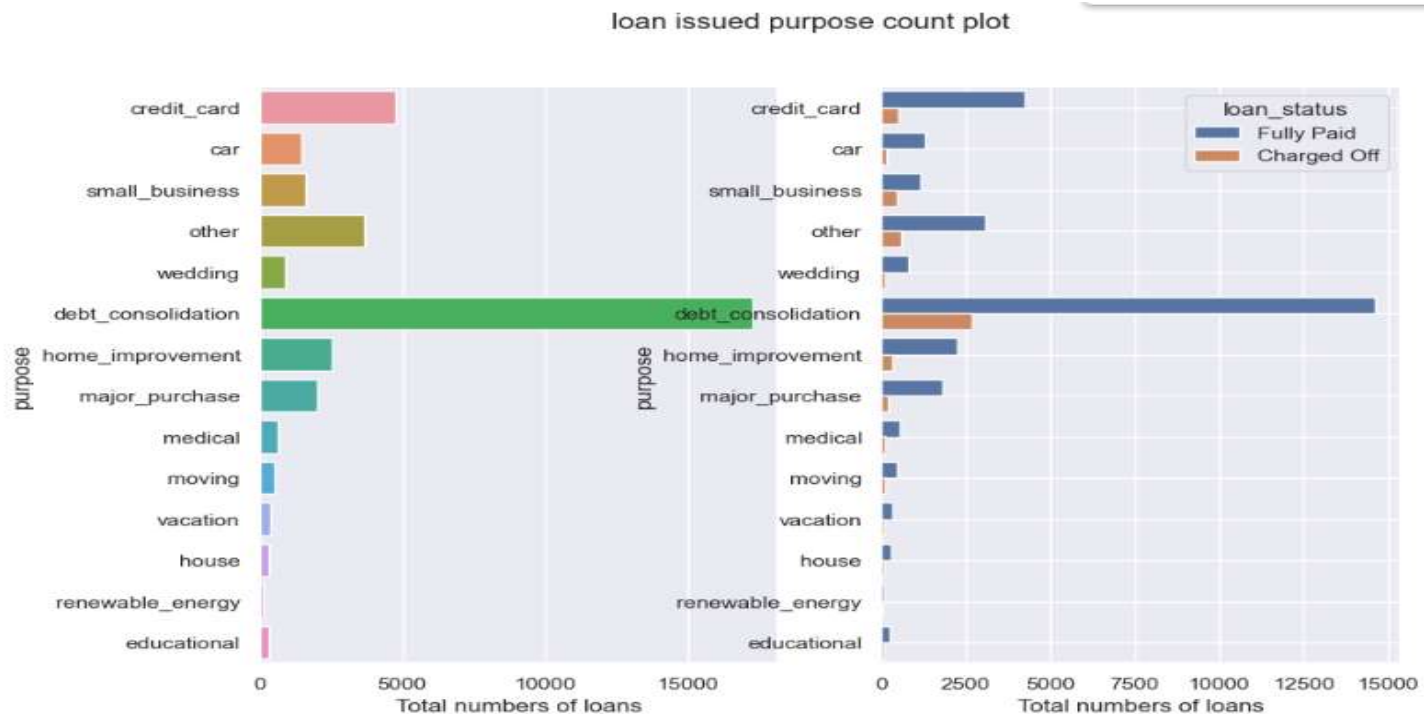
- More then 30000 persons fully paid the loan
- And more then 5000 charged off



# PURPOSE

## Observation:

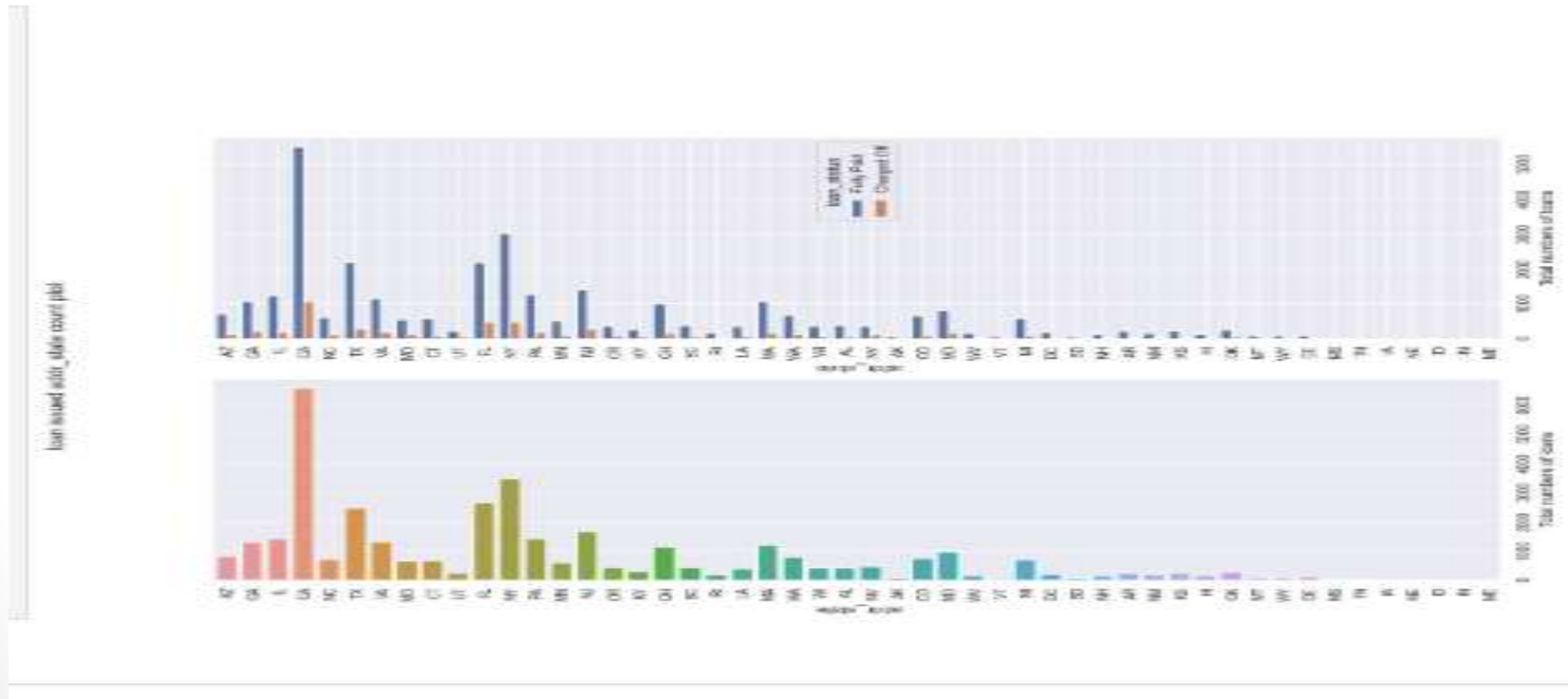
- Majority of borrowers loan apply for debt\_consolation and paying bills of credi\_card
- And majority of charged off have from debt\_consolation



# ADDRESS OF STATE

### Observation:

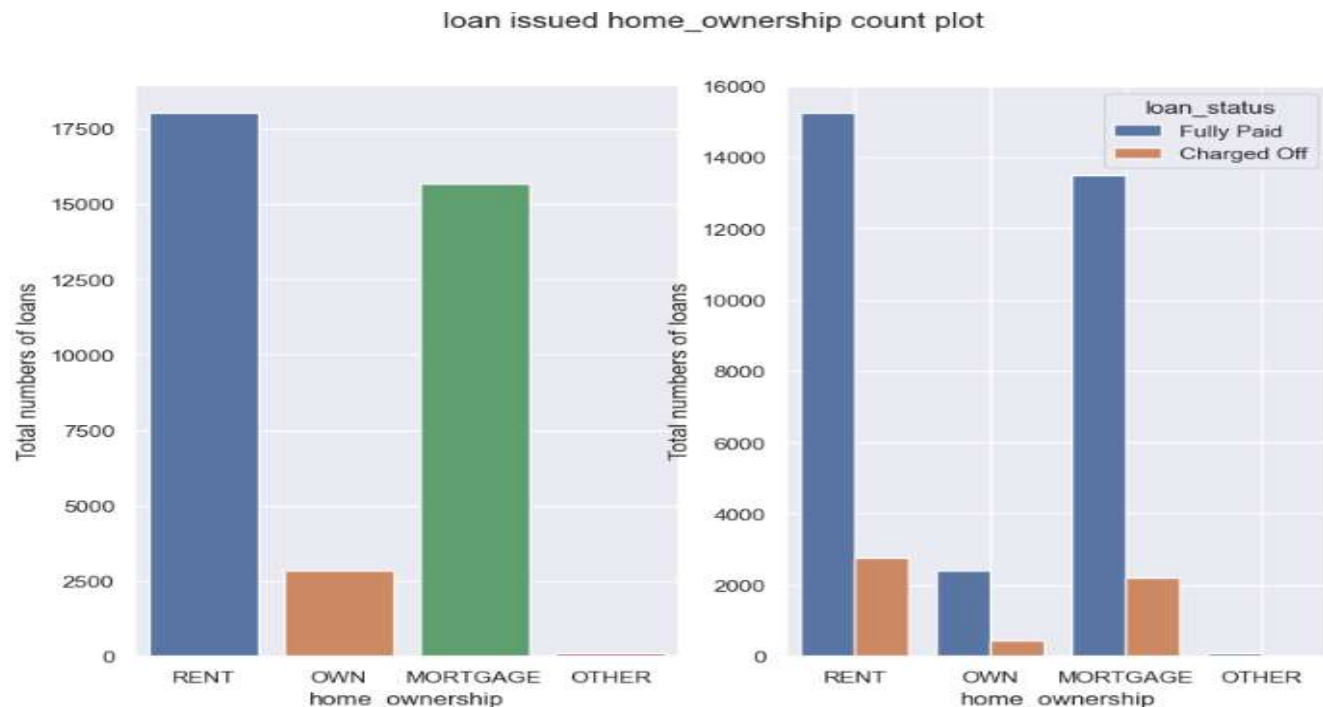
- Majority of borrowers belongs to large urban cities like California, new york, Texas, Florida and majority of charged off have from California, new york etc.



# HOME OWNERSHIP

## Observation:

- Majority of peoples taking loan is didn't have ownership of house they coming from rent and Mortgage category.
- Charged Off loan status is also high for same categories (Rent and Mortgage)

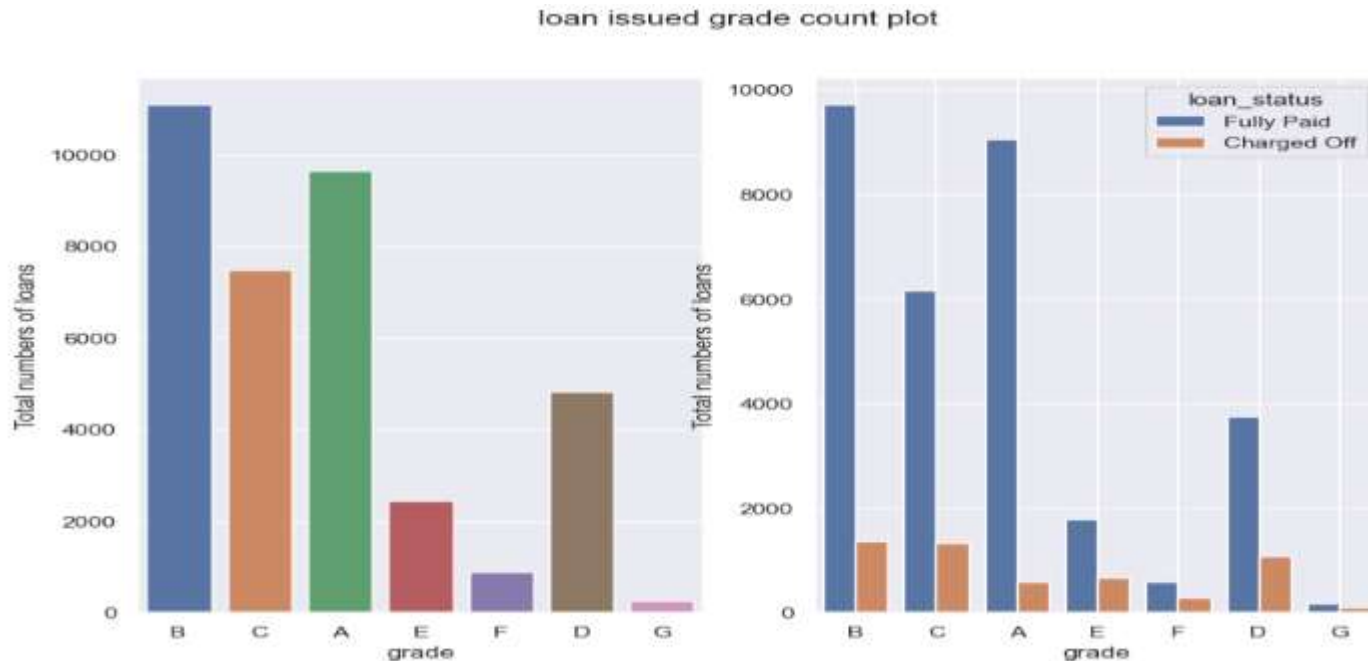




# GRADES

## Observation:

- we can say that most of them have taken loan is coming from grade B A C D E and F.
- But charged Off loan status is high for grade B C D and E.

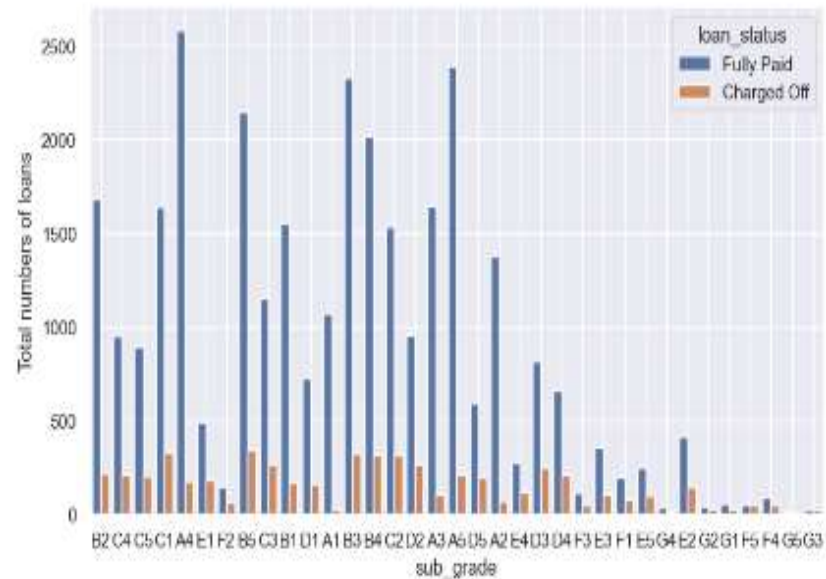
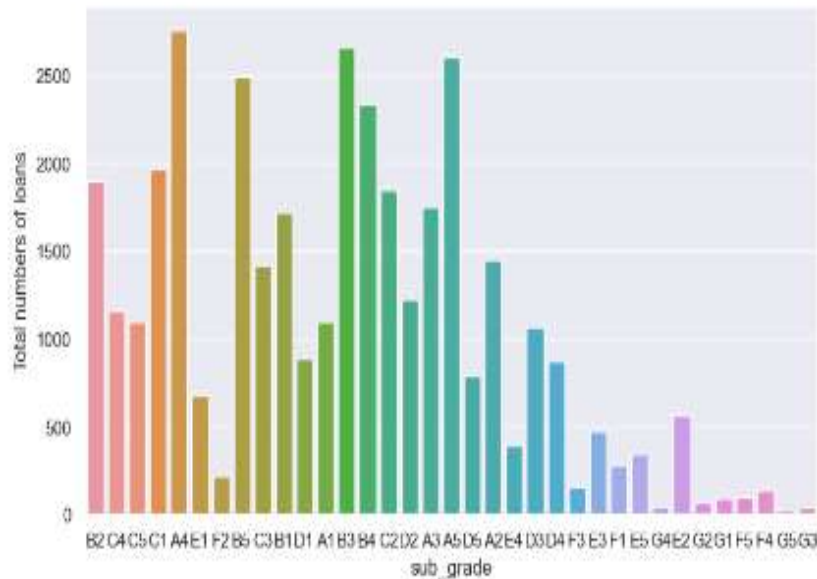


# SUB-GRADES

## Observation:

- looking subgrade data, we can say that most of them have taken loan is coming under A4 A5 B4 B5, B3 B2 A3 A2 C1 C2 etc. Charged Off loan status is also high for same sub-grades.

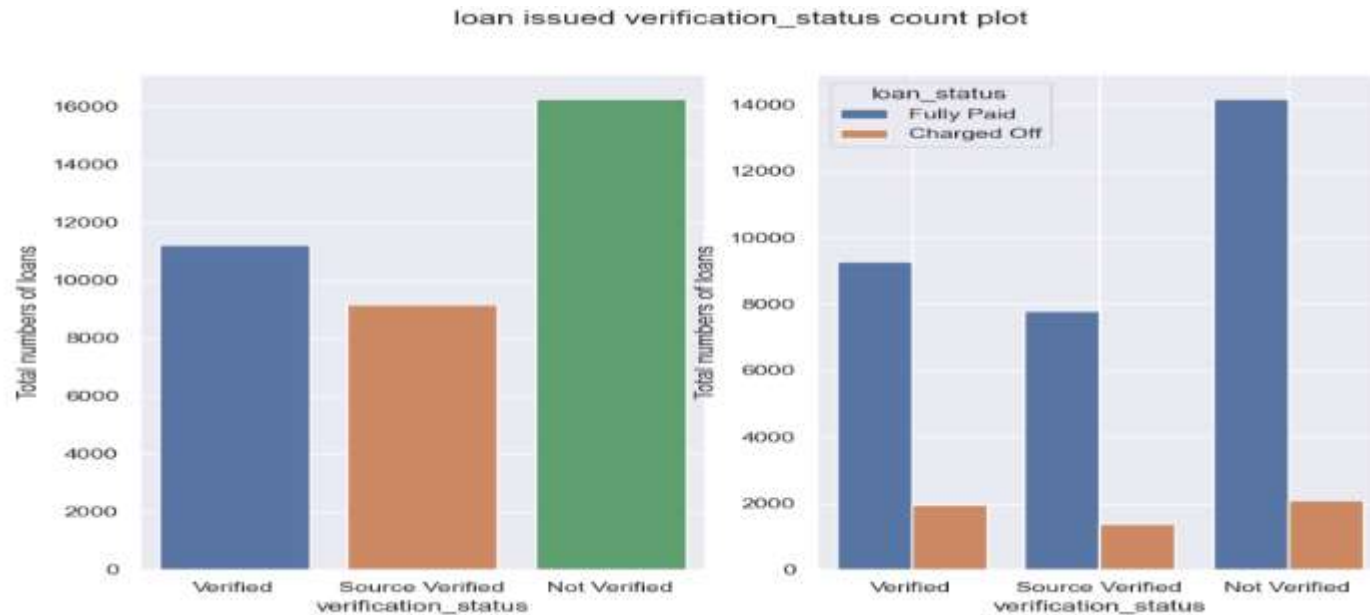
loan issued sub\_grade count plot



# VERIFICATION STATUS

## Observation:

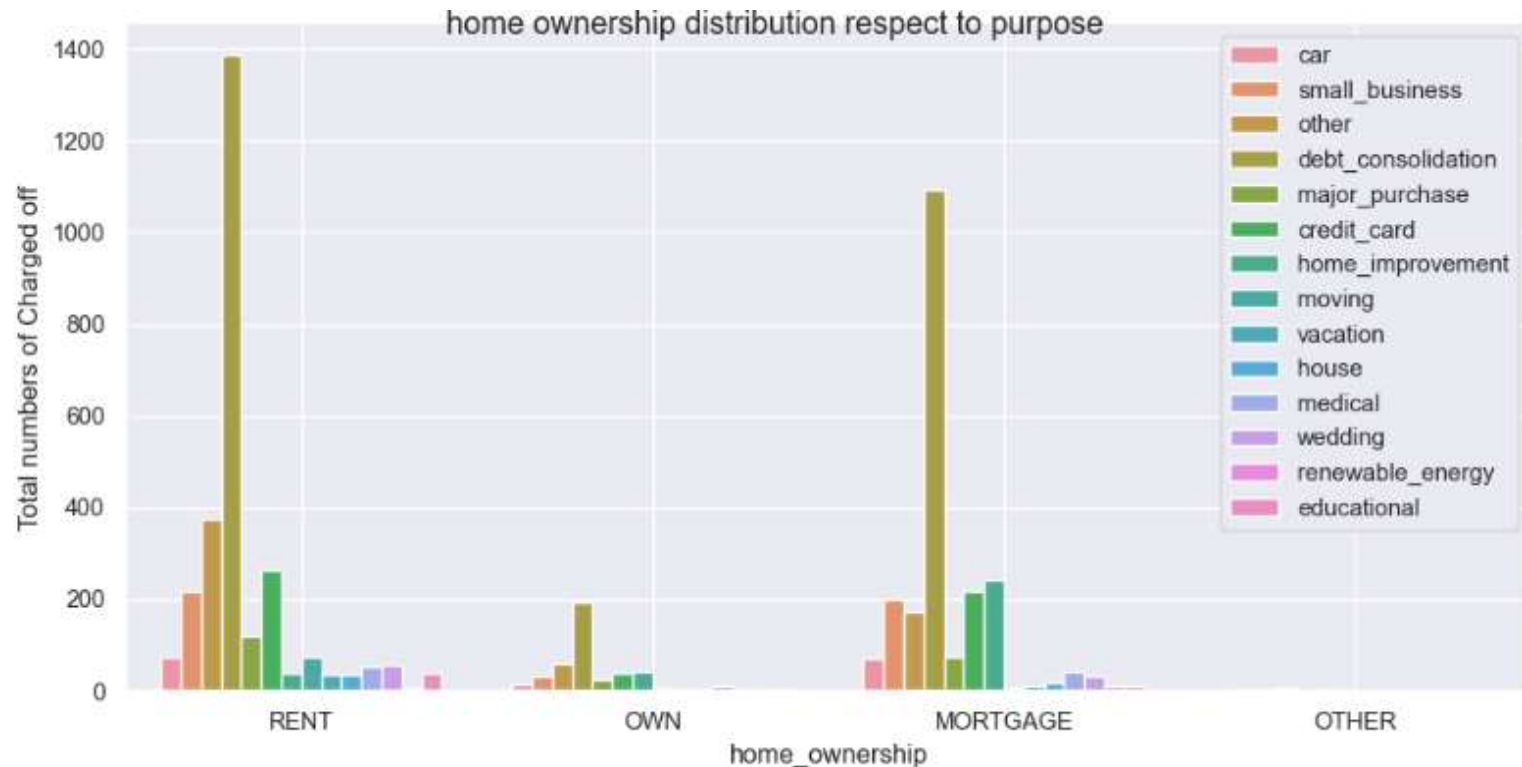
- mostly 50% borrowers verified or source verified and majority of chargedoff happen from not verified persons



# HOME OWNERSHIP DISTRIBUTION RESPECT TO PURPOSE

### Observation:

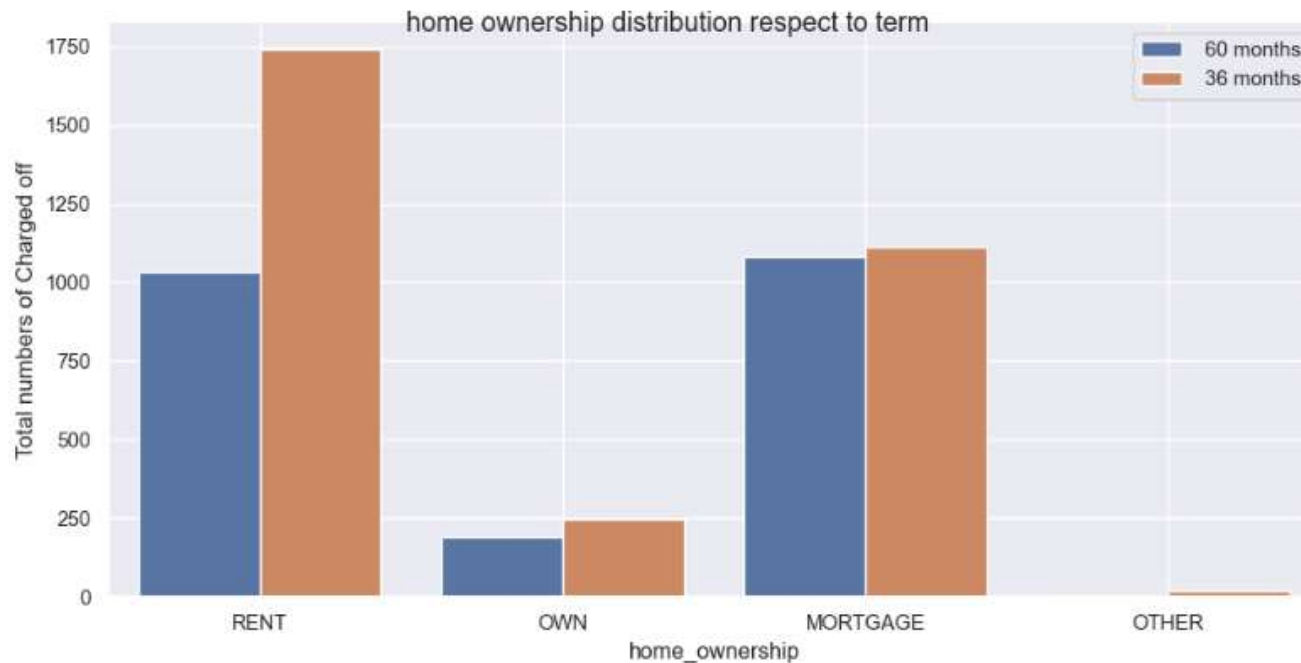
- Most of charged off coming from who taking loan for debt\_consolation and renting house .



# HOME OWNERSHIP DISTRIBUTION RESPECT TO TERM

## Observation:

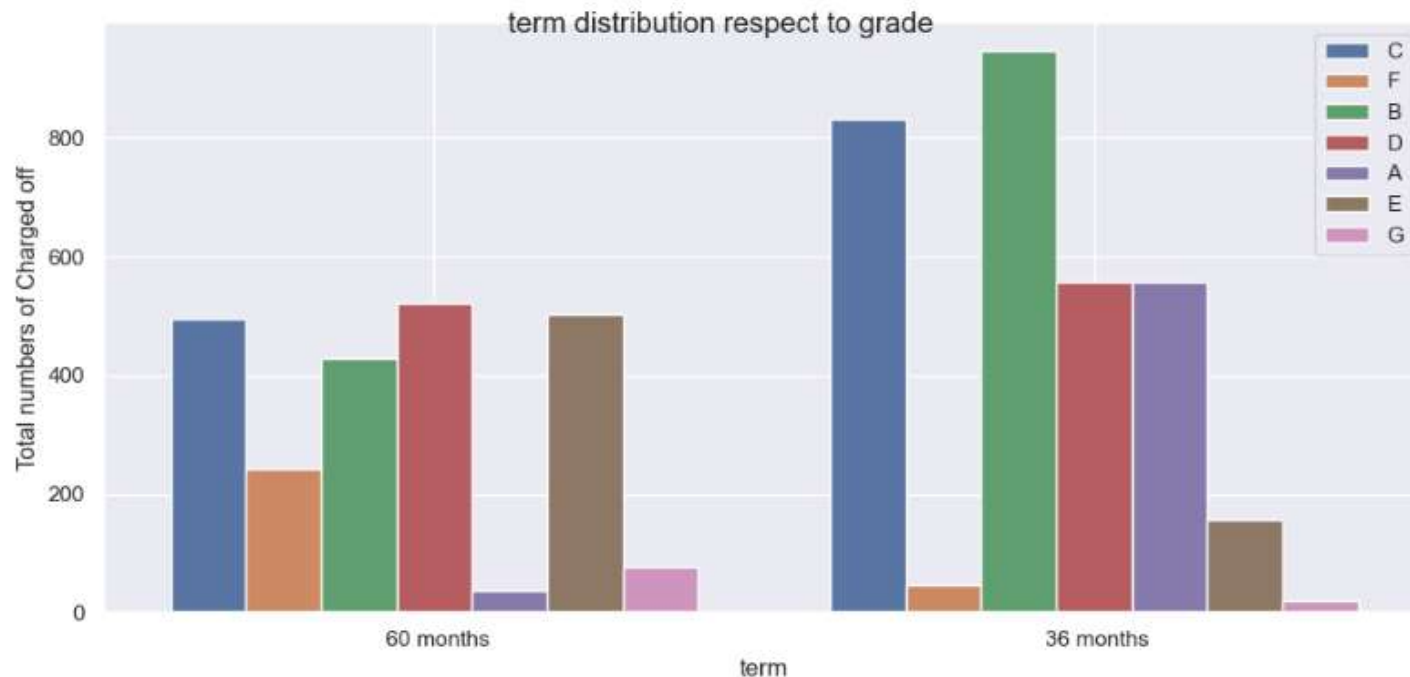
Mostly charged off for rent 36 months and leaving on rent



# TERM DISTRIBUTION RESPECT TO GRADE

## Observation:

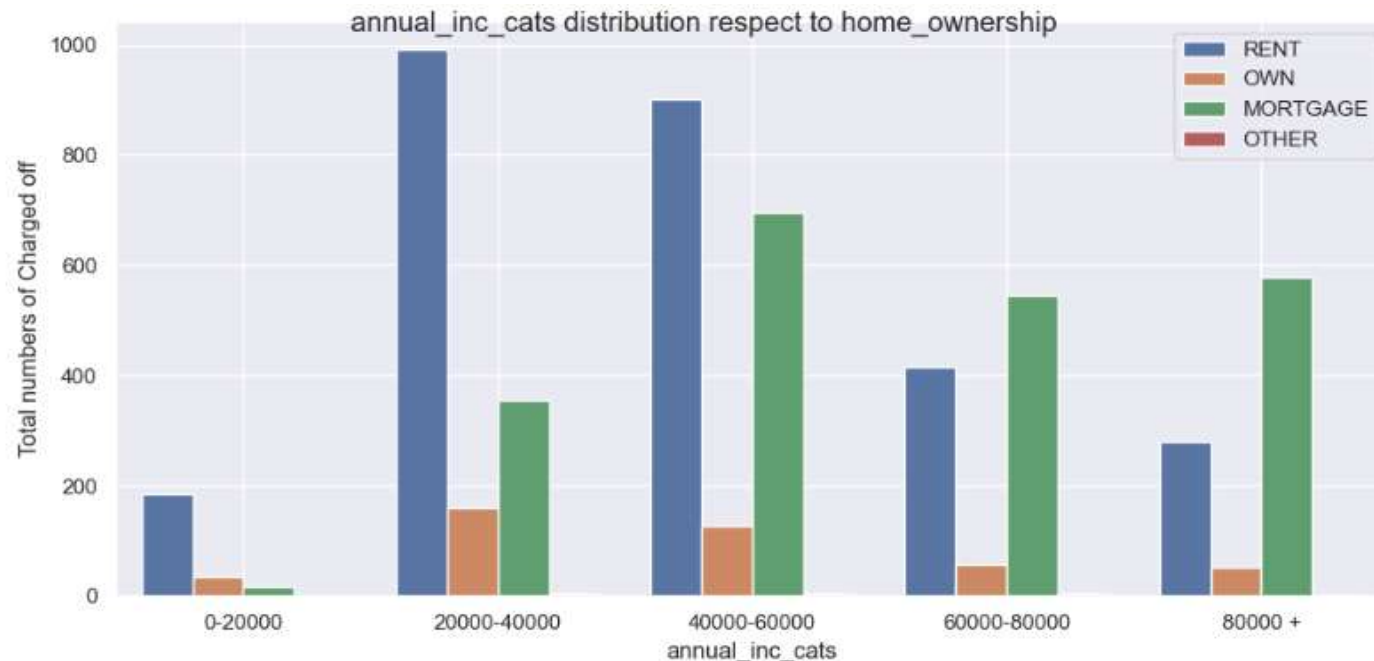
- Mostly charged off for 36 months grade B and C



# ANNUAL INCOME DISTRIBUTION RESPECT TO HOME OWNERSHIP

## Observation:

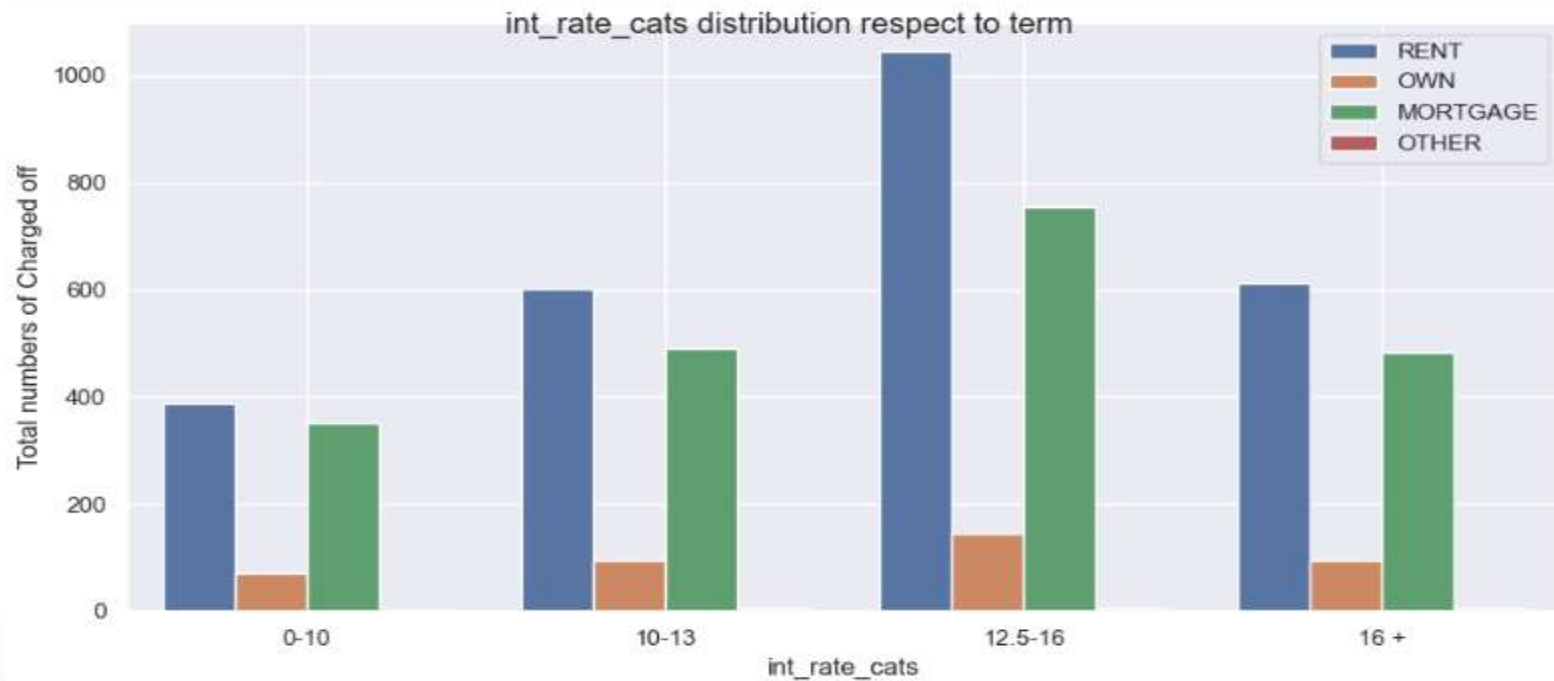
- No. of peoples Charged \_off which annual\_income have 20k to 60k which on living on rent



# INTERSET RATE RESPECT TO TERM

## Observation:

- No. of majority people charged\_off which one taking lone on 12.4 to 16 interest rate and leaving on rent.

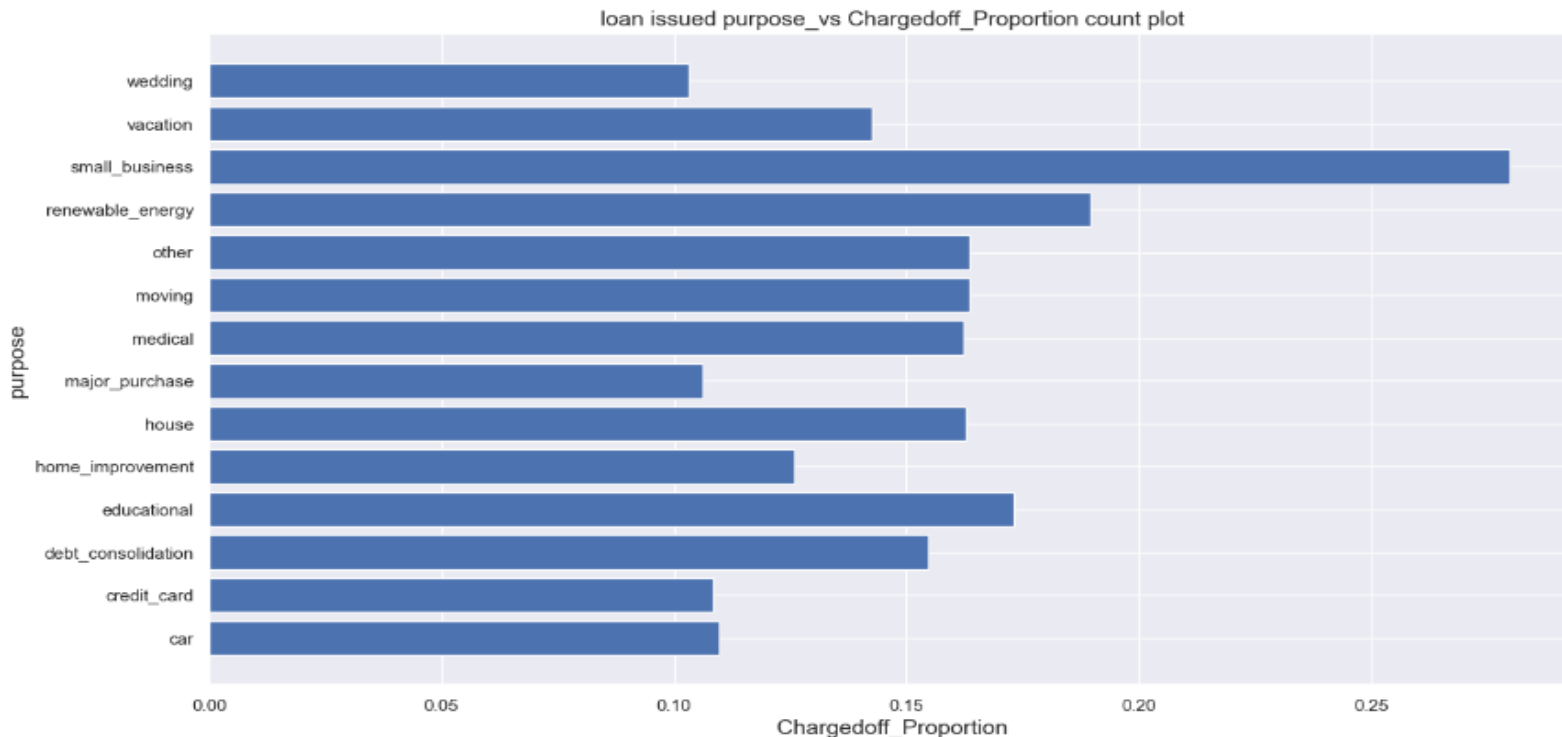




# CHARGED\_OFF PERCENTAGE AS PER PURPOSE

## Observation:

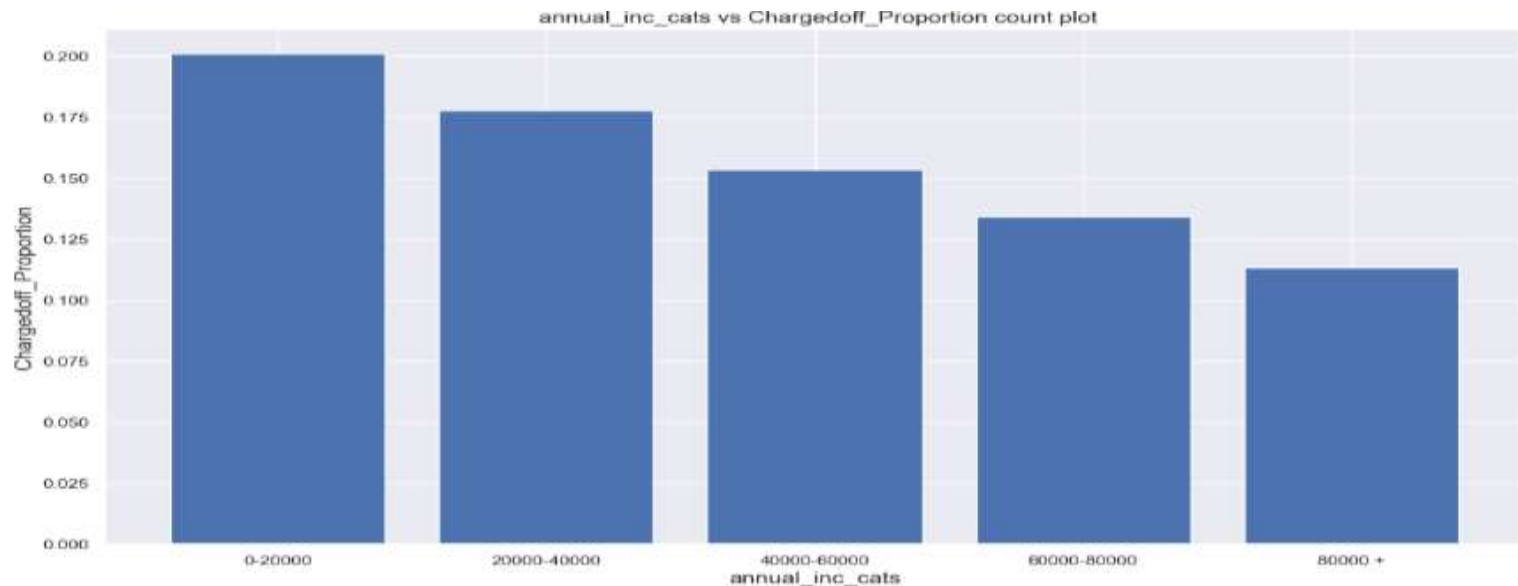
- Borrowers which one taking loan for small business having 27.97% chances of charged\_off
- Borrowers which one taking loan for wedding, major\_purchases and car have low risk of charged\_off.



# CHARGED\_OFF PERCENTAGE AS PER ANNUAL INCOME

## Observation:

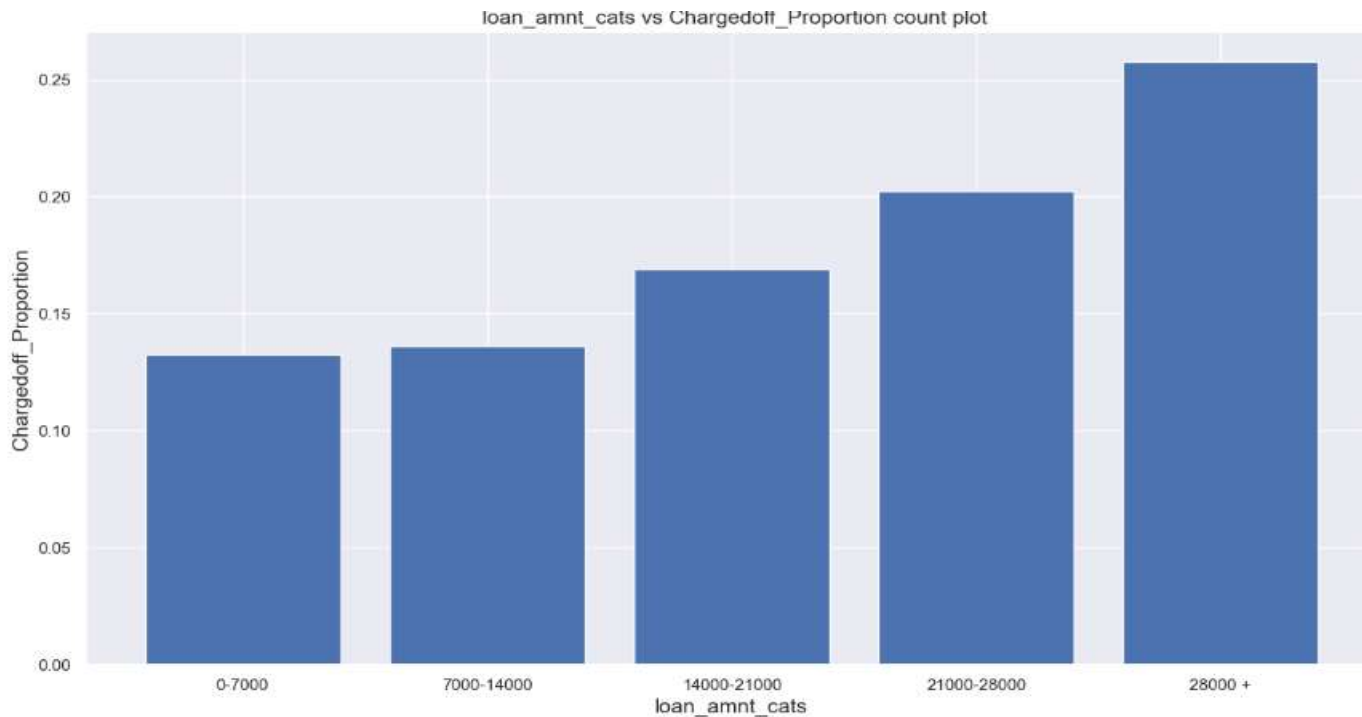
- Borrowers which one taking loan have lower income (0 to 20K) Have 20% risk of charged off



# CHARGED\_OFF PERCENTAGE AS PER LOAN AMOUNT

## Observation:

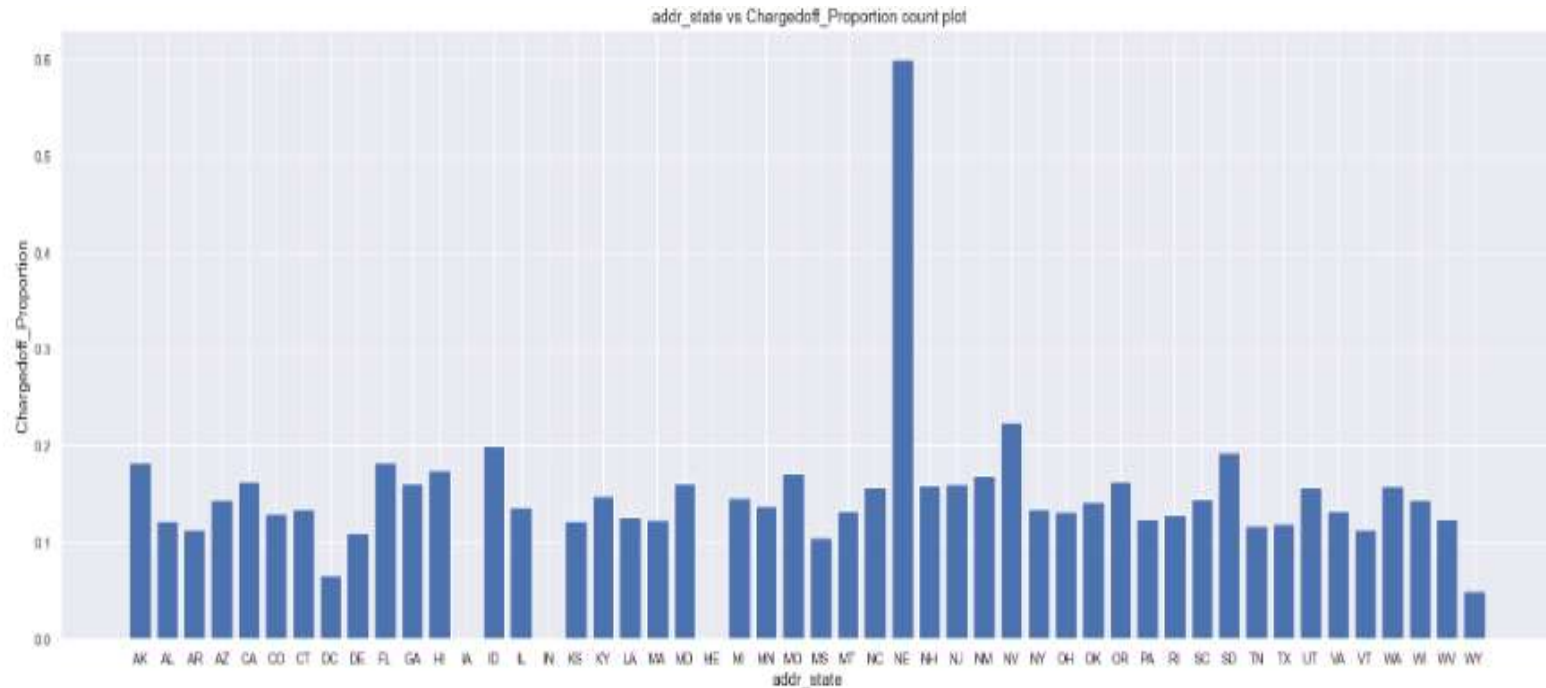
- Borrowers which one taking loan of higher amount (more then 28K) have 25.75% of charged\_off
- Borrowers which one taking loan of less amount(0 to 14K)have less risk of charged\_off



# CHARGED\_OFF PERCENTAGE AS PER ADDRESS STATE

## Observation:

- Borrowers which one taking loan coming from NE state have 60% of chances charged\_off
- Borrowers which one taking loan coming from IA IN and ME have low risk of charged\_off

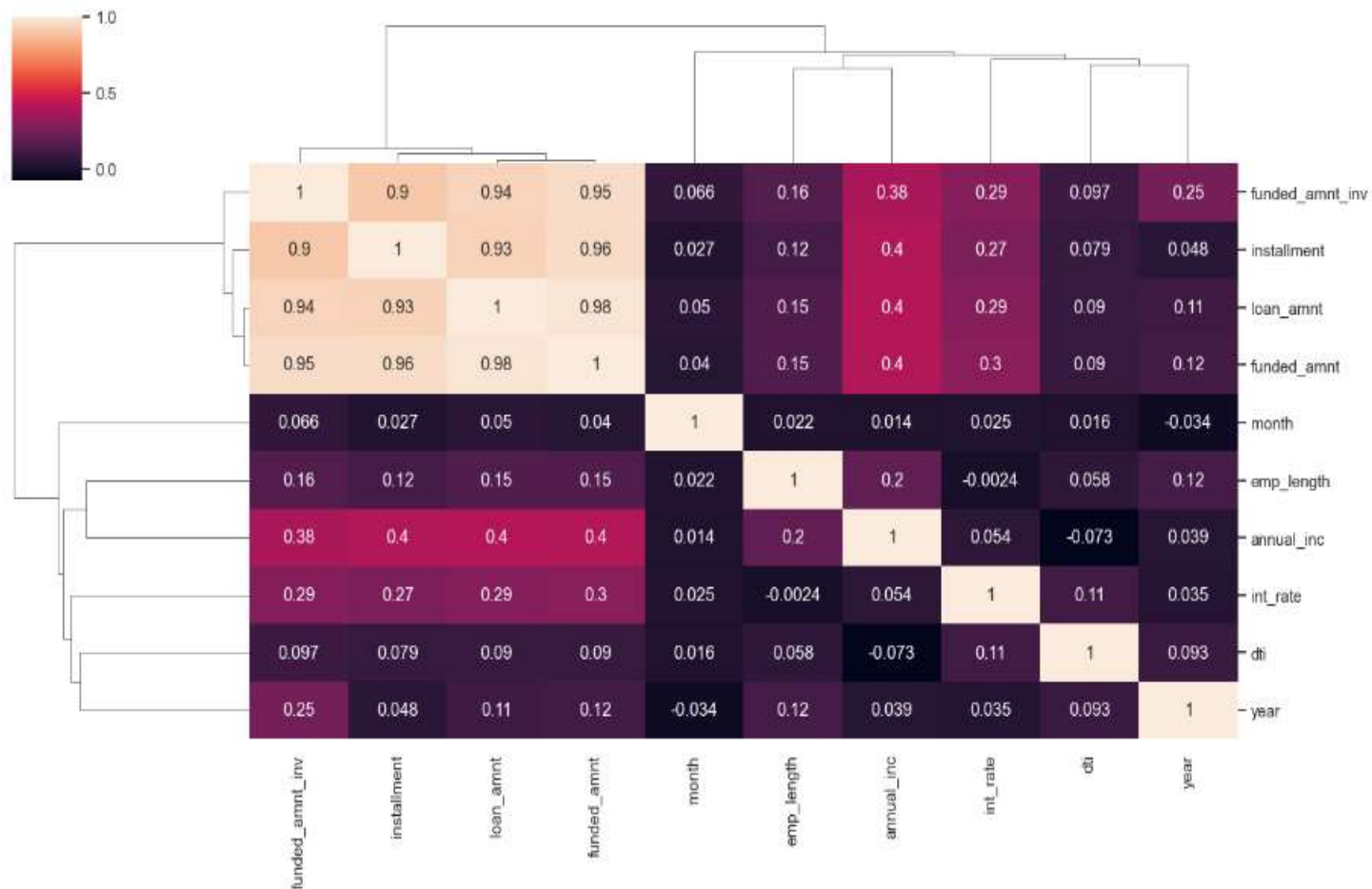


# CORRELATION HEAT MAP

## Observation:

- Loan amount funded\_amt\_inv, instalment fundend\_amt are highly positive correlated and dti and annual\_inc highly negative correlated.

Correlation between Columns



# SUGGESTIONS

- Lending club should consider to accepting more loans request less then 10% interest rate as their probability of charged\_off is have lesser.
- Lending club should consider to accepting more loans request for borrowers which owning house their have lees probability to Charged\_off.
- Lending club should consider to accepting more loans request for grade A respect to B C D because in B C D E have lots off Charged\_off
- Lending club should consider to accepting more loans request of borrowers which have annual income greater then 90000 its charged\_off % have nearest 10%.
- Lending club need to accept more loan for 36 month term there have less chances of charged\_off and it continuously increasing year by year.
- Lending club need to accept loan which owning house, annual income have greater then 90000, interest rate is less then 10%.This combination is have less chances to charged\_off.
- Lending club should accept more loan request of borrowers which one have source verified or verified. Their have less chance of charged\_off.
- Lending club should accept more loan request of borrowers which one have employment experience less then 10 years.
- Lending club should accept more loan for applied for wedding, major\_purchase, car and credit\_card here have chances of charged\_off is less nearest 10% but for small business have 27.97% charged\_off.
- Lending club should accept the loan request for small loan amount For loan amount till 14K charged\_off(nearest 13%) have low risk
- Lending club should accept the loan request for coming from address state IN IA and ME here having low risk of charged off.



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