

# Lending Club Case Study

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# Objective:

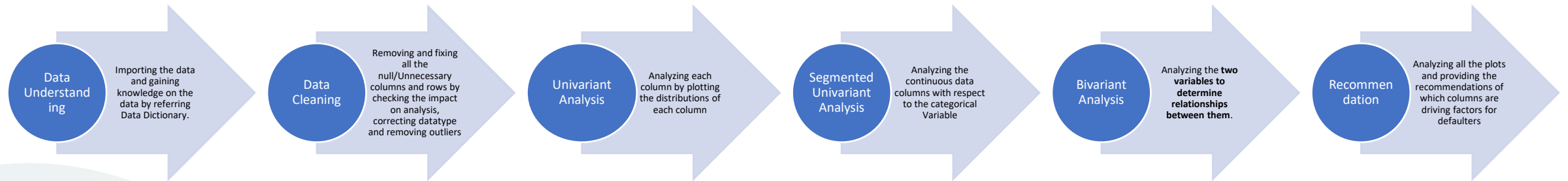
- Lending Club company is the largest online loan marketplace, facilitating personal loans, business loans, and financing of medical procedures.
- Like most other lending companies, lending loans to 'risky' applicants is the largest source of financial loss (called credit loss)
- Company wants to understand the driving factors (or driver variables) behind loan default, i.e. the variables which are strong indicators of default. The company can utilize this knowledge for its portfolio and risk assessment.
- Identification of such applicant's using EDA is the aim of this case study.



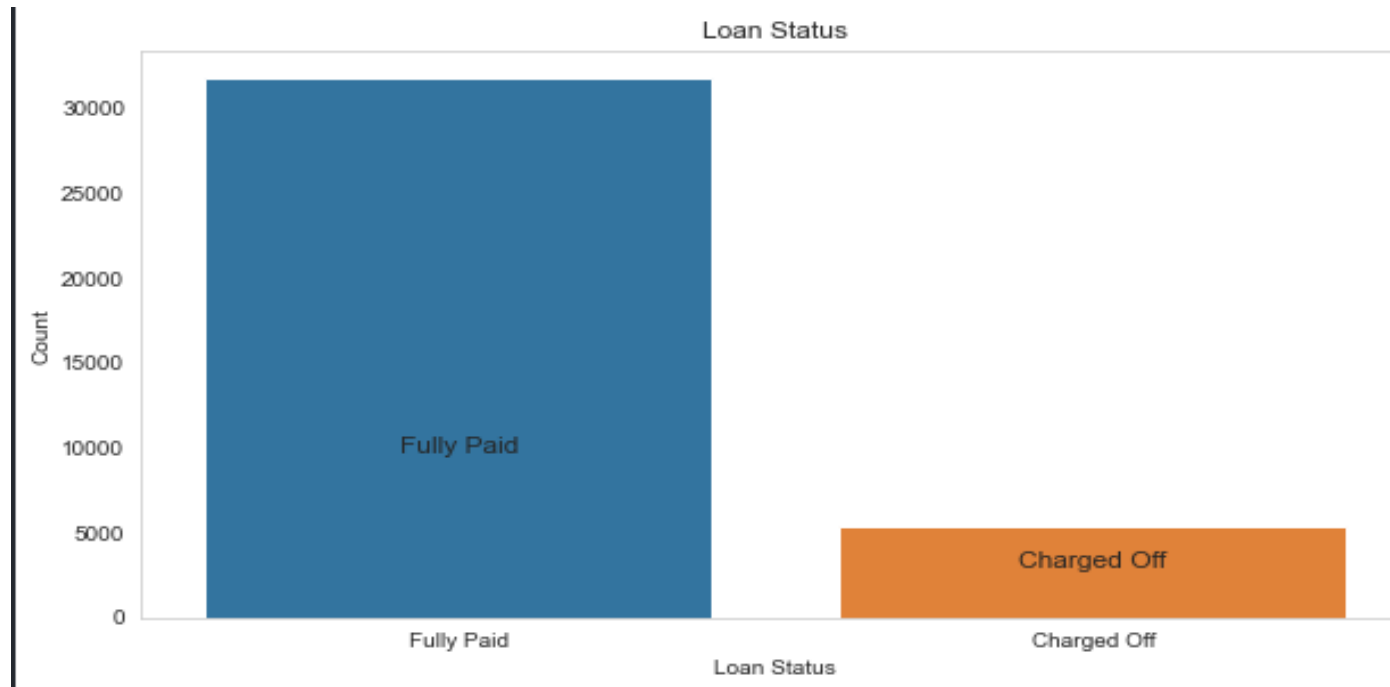
## Problem Statement:

Identification of driving factors (or driver variables) behind loan default, i.e. the variables which are strong indicators of default. So that the company can utilize this knowledge for its portfolio and risk assessment.

# Analysis Approach :



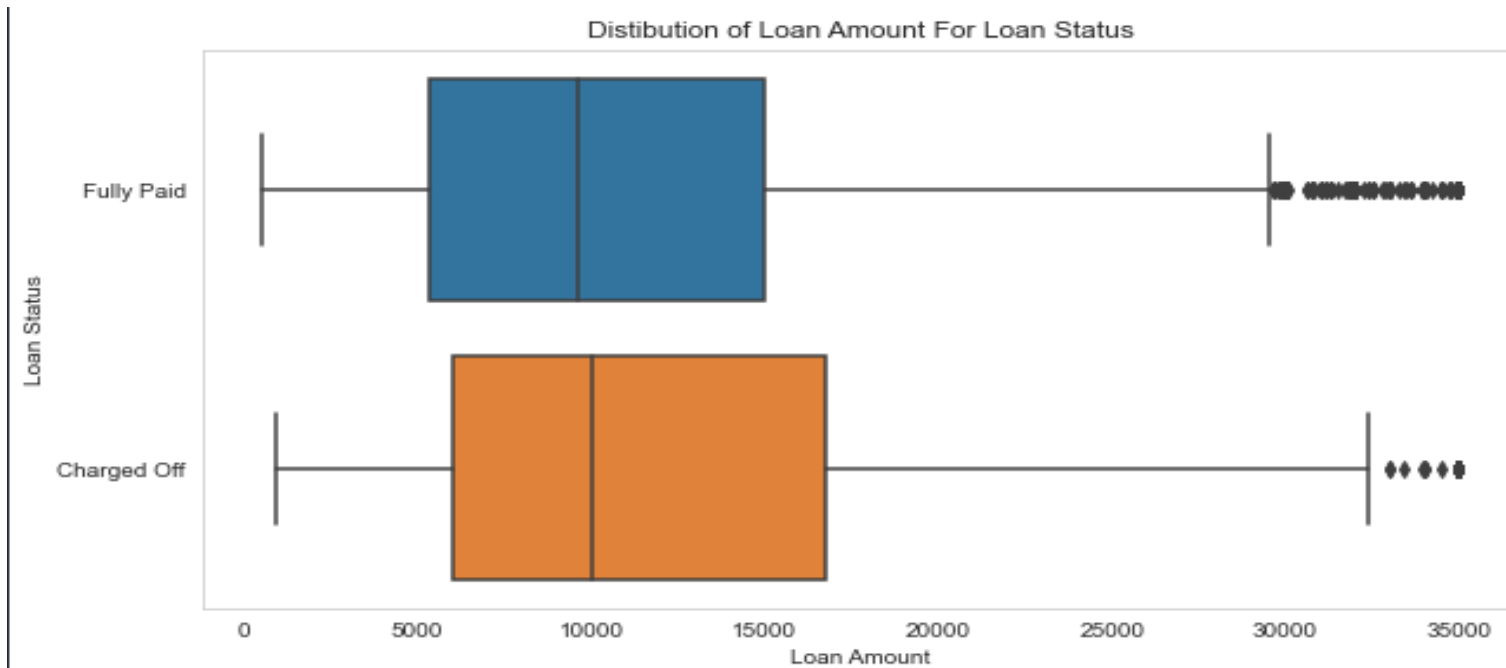
# Analysis : Loan Status



## Observation:

- ❖ The number of charged off loan is much smaller(14.5%) of Total count.

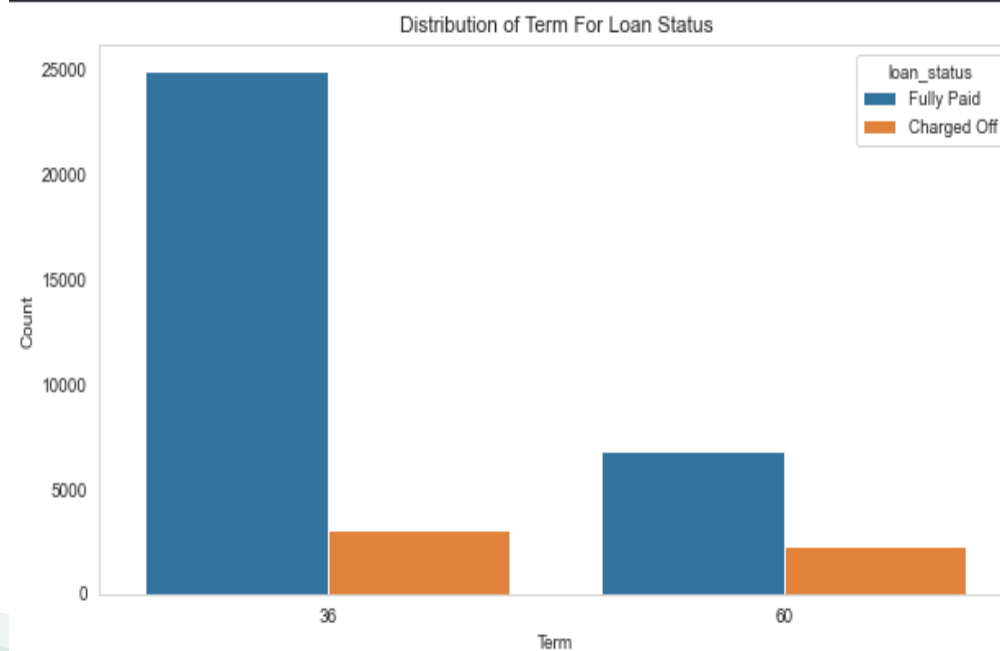
# Analysis : Loan Amount



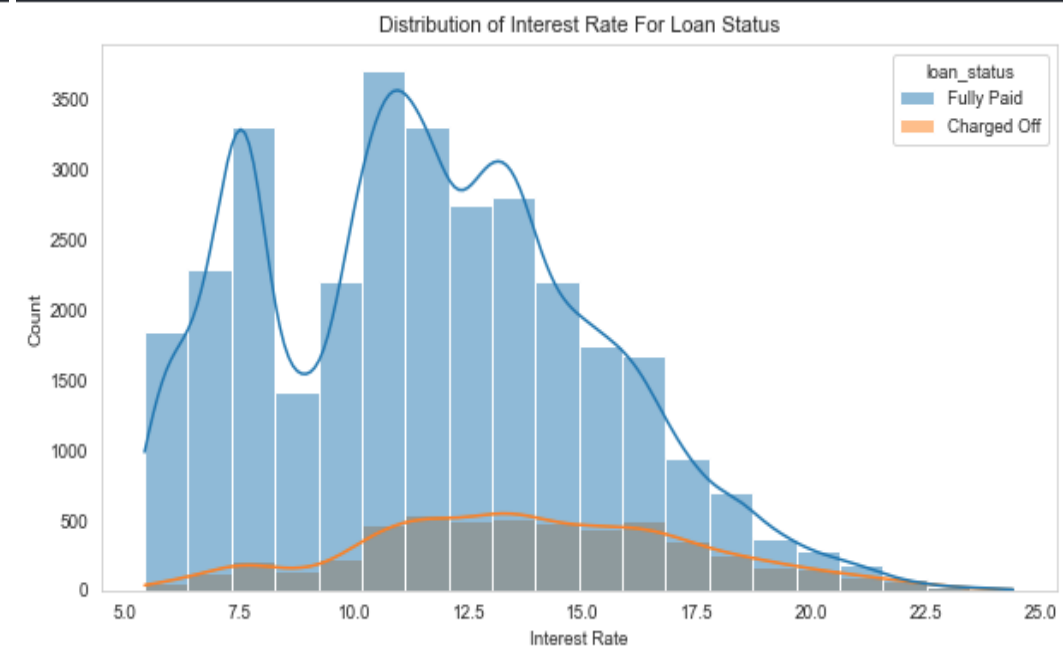
## Observation :

- ❖ Loan amount varies from 500 to 35000 with a median of 10000.
- ❖ Larger the loan, higher the chance of defaulting.

# Analysis : Term and Interest Rate

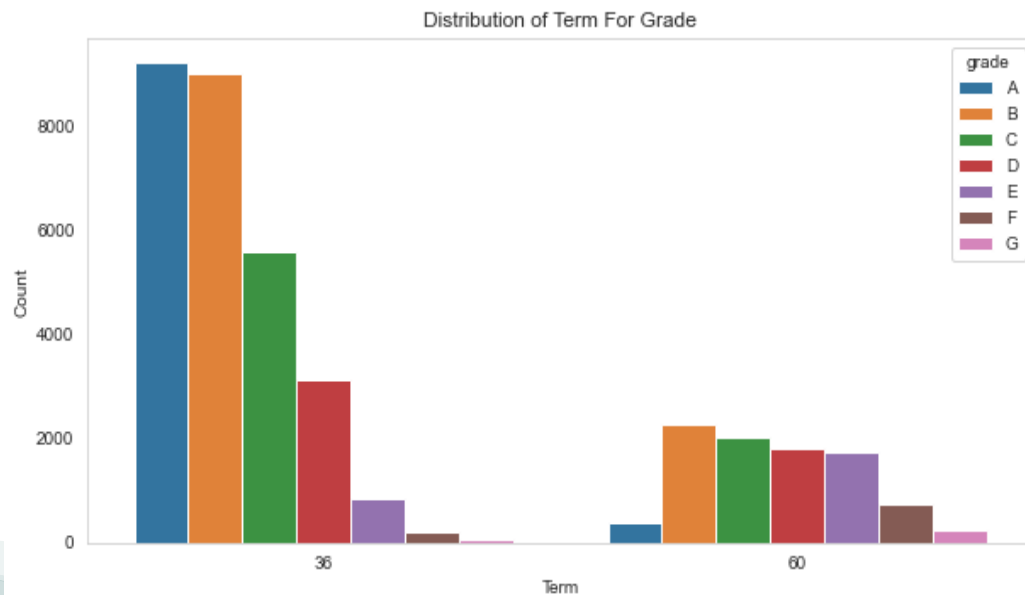


**Observation :** The loan's taken for 36 months term are much more than 60 months and have lower chance of defaulting.

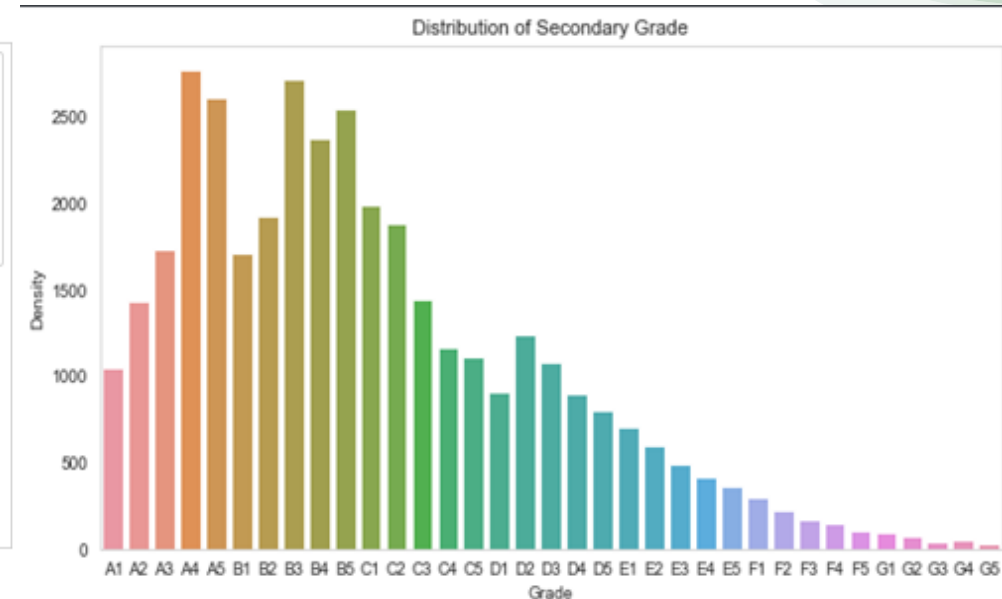


**Observation :** The count of loan taken varies with interest rate showing peak around in 5-15 bracket. Chance of defaulting increases with the increase in interest rate.

# Analysis : Grade and Sub-Grade



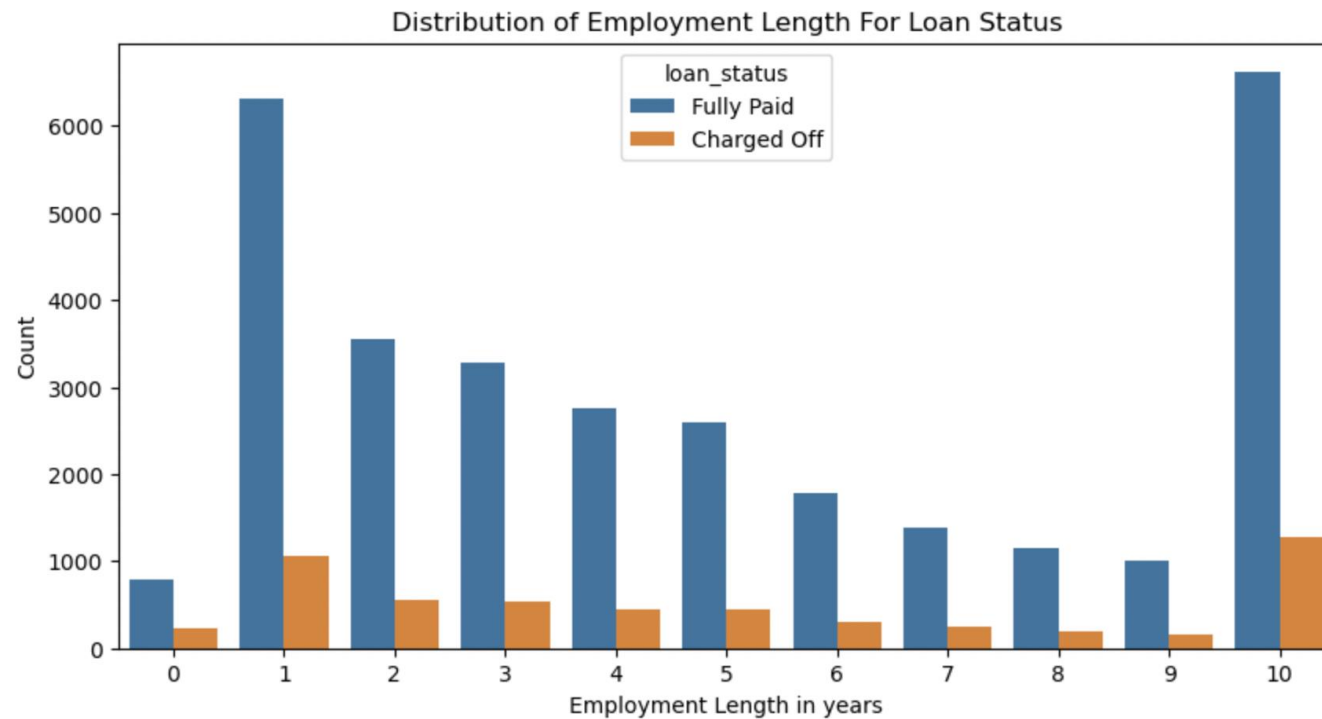
**Observation :** The loan approved are majorly of higher grade as they are of low risk thus low chance of defaulting. 60 months term loans have larger number of lower grade loans with high risk of defaulting



**Observation :** This provides more insight that the loans within grade are more skewed towards lowered sub grades.



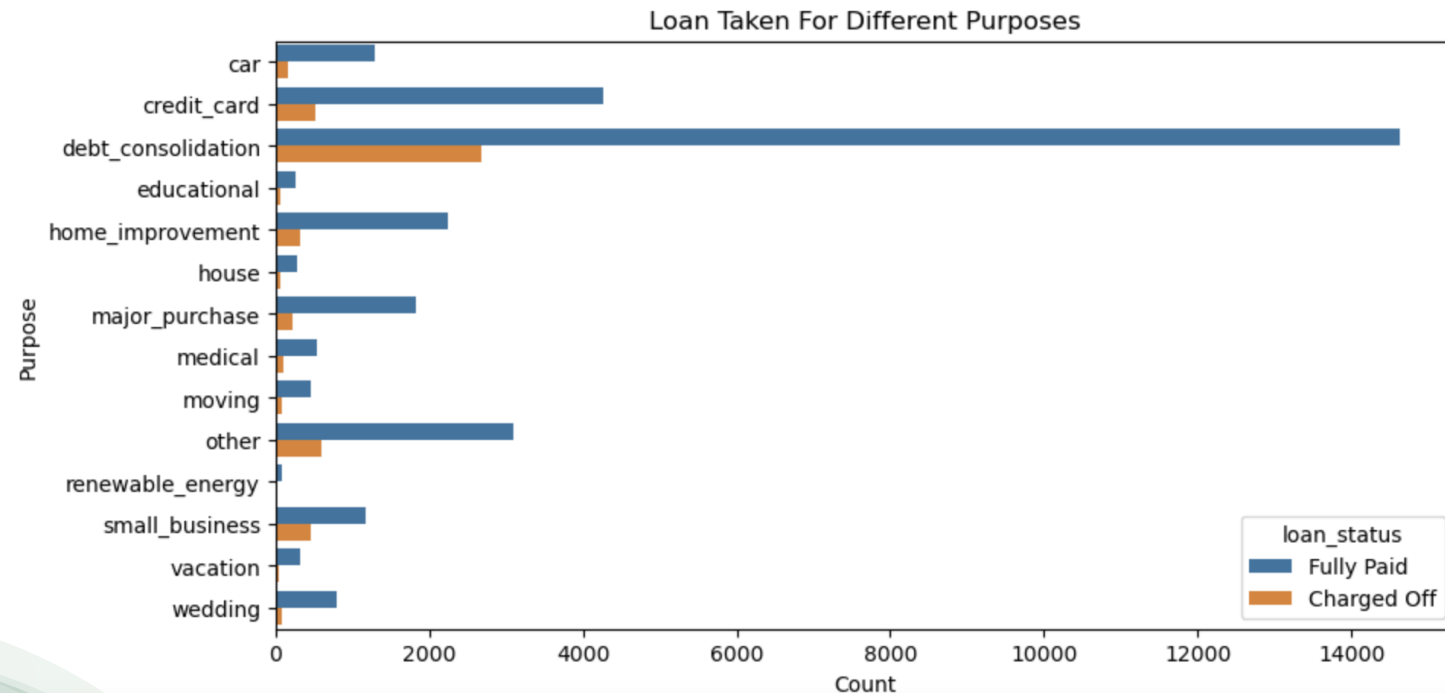
# Analysis : Employment Length



## Observation:

- ❖ Majority of borrowers having 1 year / 10+ years of experience has highest number of defaulted loan.

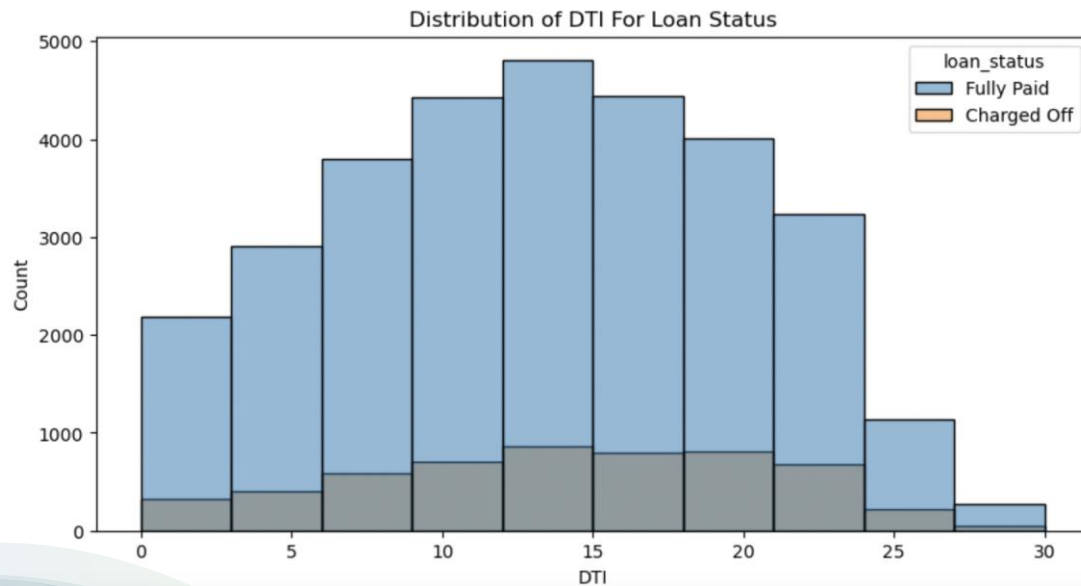
# Analysis : Purpose



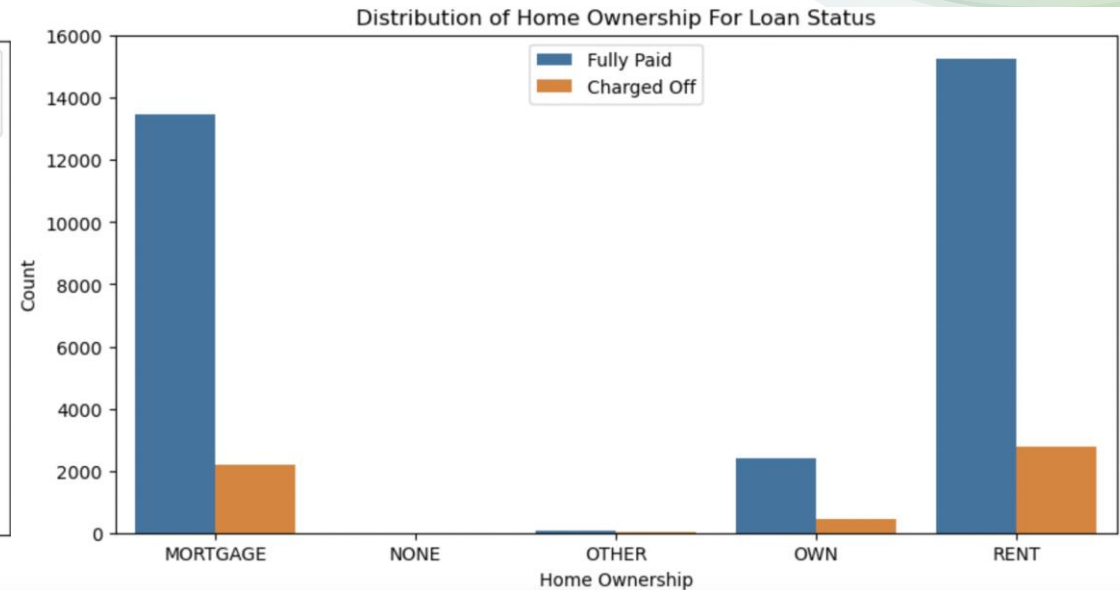
## Observation:

❖ Debt Consolidation is the most popular loan purpose and has highest number of fully paid loan and defaulted loan.

# Analysis : DTI and Home Ownership

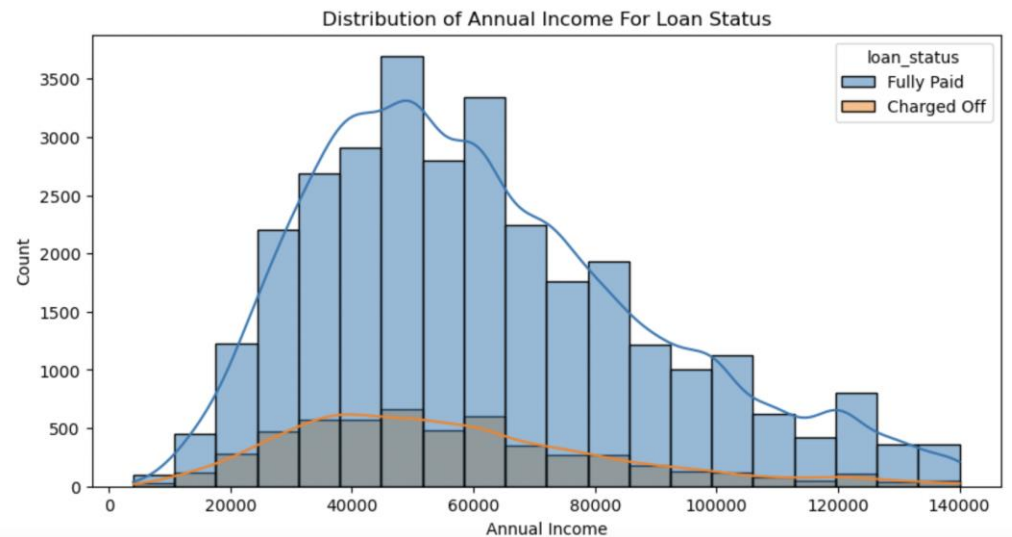


**Observation :** The large percentage of borrowers have a large Debt to Income ratio which shows that lending to such borrowers can be very risky.

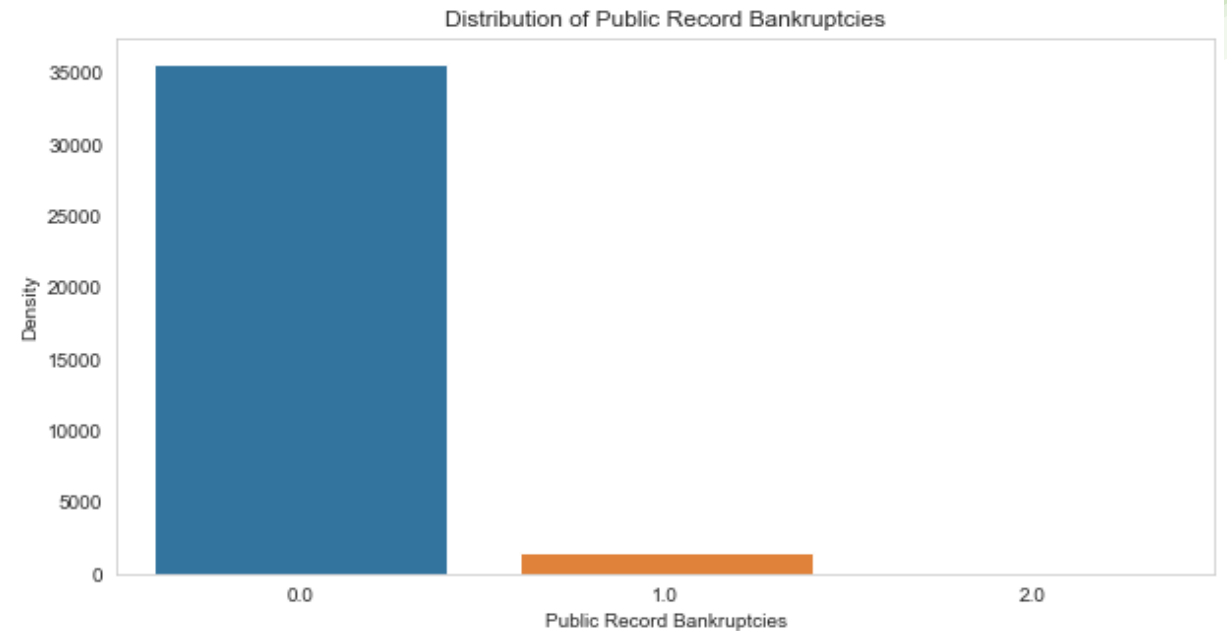


**Observation :** Majority of borrowers are lacking ownership of any property and are on rent or mortgage are have a higher chance of defaulting.

# Analysis : Annual Income and Bankruptcy



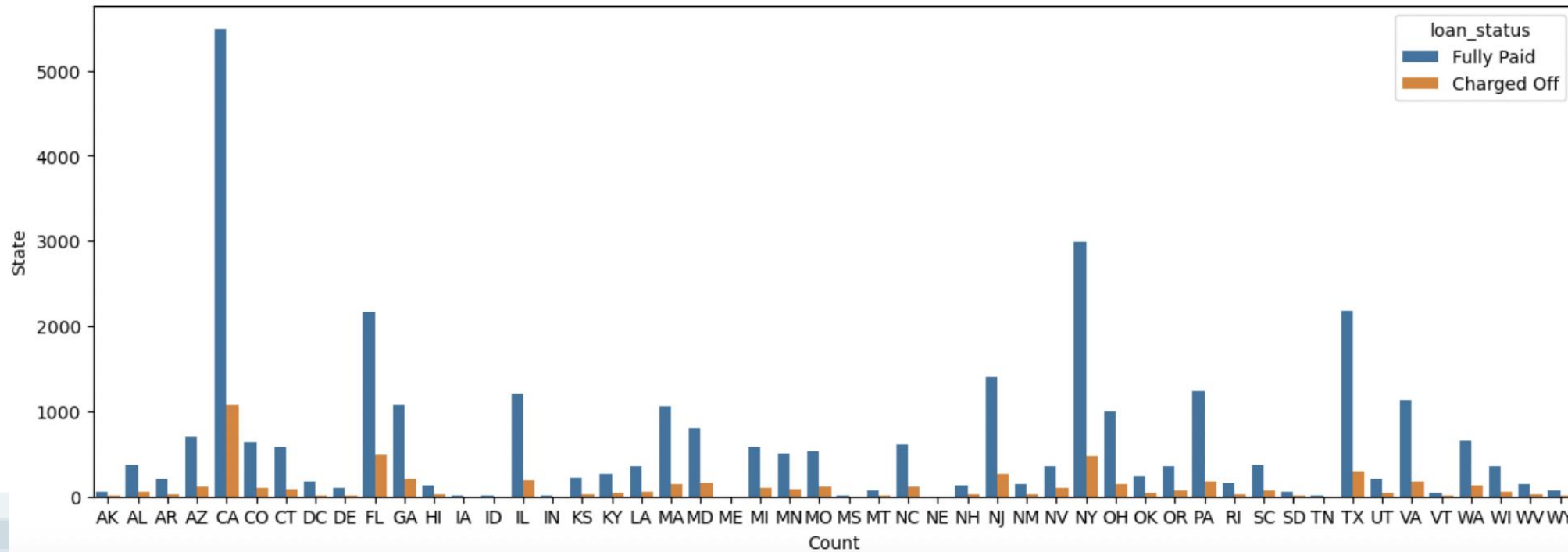
**Observation :** The Majority of borrowers have low annual income compared to rest and borrowers having income lower than 50k has higher chance of defaulting.



**Observation :** Majority of borrowers have no record of declaring bankruptcy.

# Analysis : State

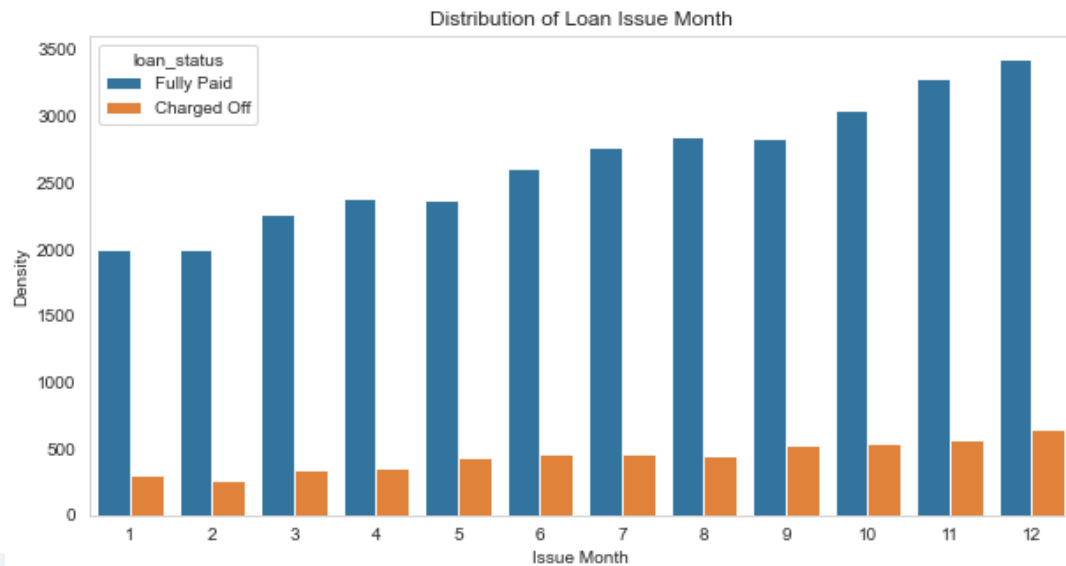
Distribution of State



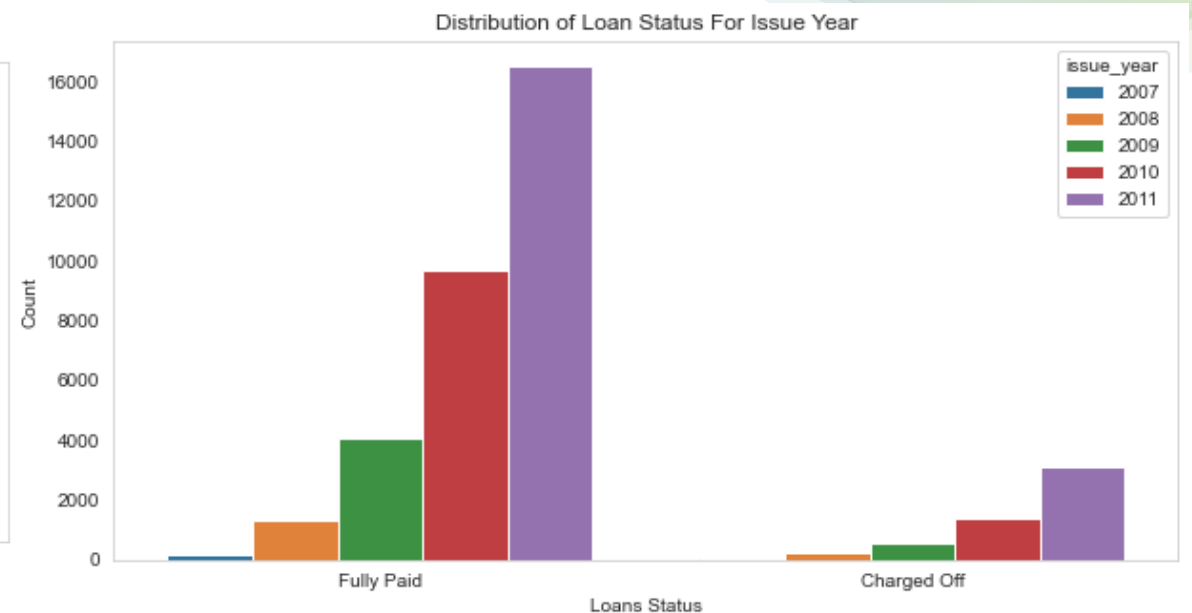
## Observation:

- ❖ For large metropolitan cities we see large number of loans, with higher number of defaulted loans like California, New York, Texas, Florida but have a lower chance of defaulting.

# Analysis : Loan Trend over years



**Observation :** We see a gradual increase in loan taken through the year, with lesser defaulting rate in April ,August, December quarter wise and better more late in year.



**Observation :** With each passing year loan taken are increasing exponentially which indicate we are seeing large increase in DTI ratio and decrease in defaulting rate.

# Recommendations:

Major Driving factor which can be used to predict the chance of defaulting and avoiding Credit Loss:

1. DTI
2. Grades
3. Verification Status
4. Annual income
5. Pub\_rec\_bankruptcies

Other considerations for 'defaults' :

1. Borrowers not from large urban cities like California, new york, texas, florida etc.
2. Borrowers having annual income in the range 50000-100000.
3. Borrowers having Public Recorded Bankruptcy.
4. Borrowers with least grades like E,F,G which indicates high risk.
5. Borrowers with very high Debt to Income value.
6. Borrowers with working experience 1 and 10+ years.