

LENDING CLUB CASE STUDY

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ABSTRACT

- Lending club is the largest online loan marketplace, facilitating personal loans, business loans, and financing of medical procedures.
- Borrowers can easily access lower interest rate loans through a fast online interface.
- The objective of analysis is to use the information about past loan applicants and find whether they 'defaulted' or not.

PROBLEM SOLVING METHODOLOGY

DATA CLEANING

We will be removing the null valued columns, unnecessary variables and checking the null value percentage and removing the respective rows

DATA UNDERSTANDING

We will be working with data dictionary and getting knowledge of all the columns and their domain specific uses

UNIVARIATE ANALYSIS

We will be analyzing each column and plotting the distributions of each column

SEGMENTED UNIVARIATE

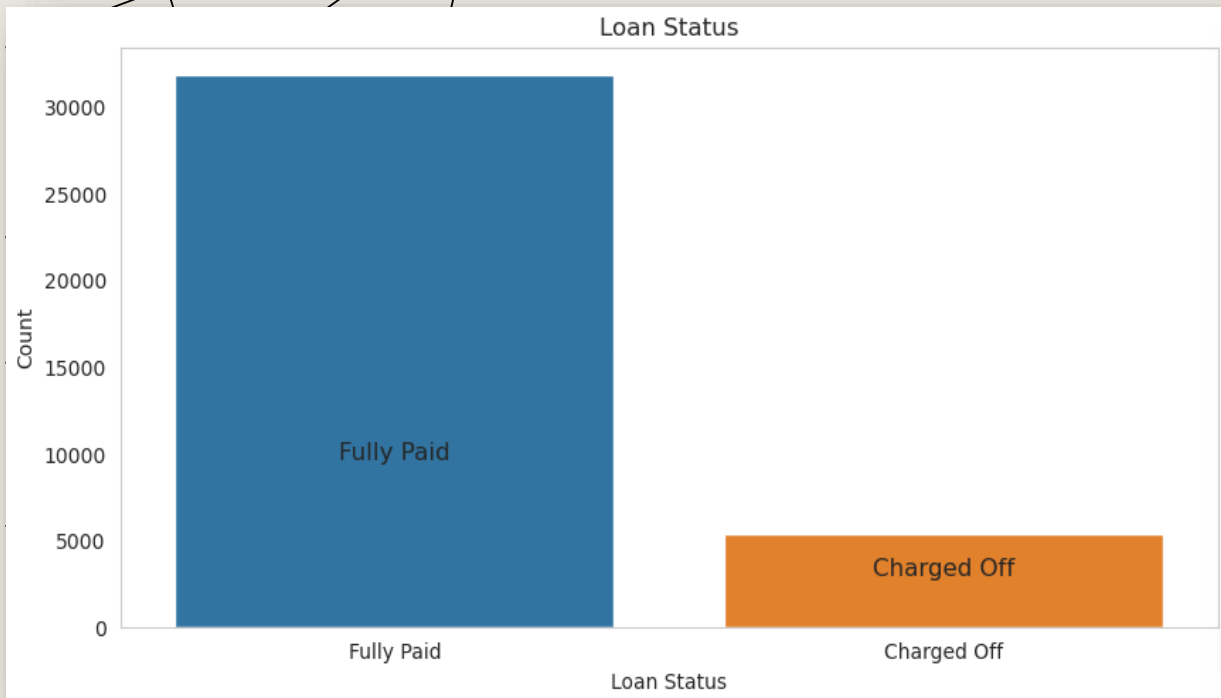
We will be analyzing the continuous data columns with respect to the categorical column

BIVARIATE ANALYSIS

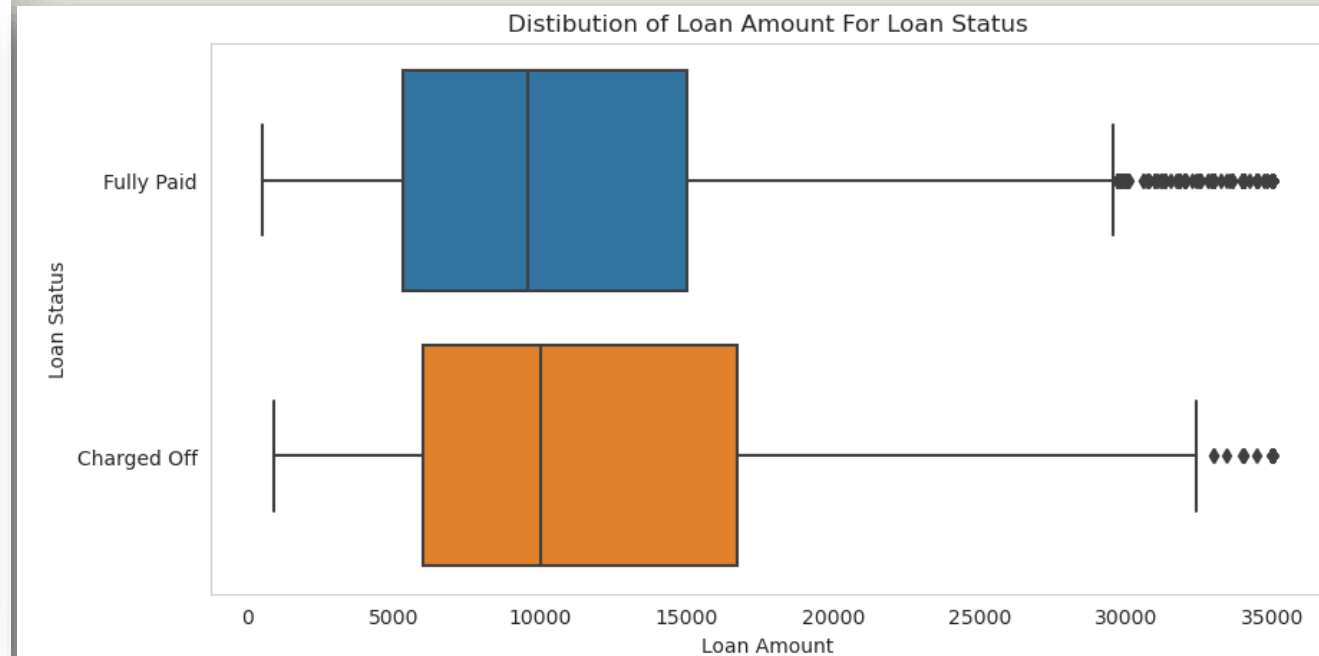
We will be analyzing the two-variable behavior like term and loan status with respect to loan amount

ANALYSIS

Loan status & Amount



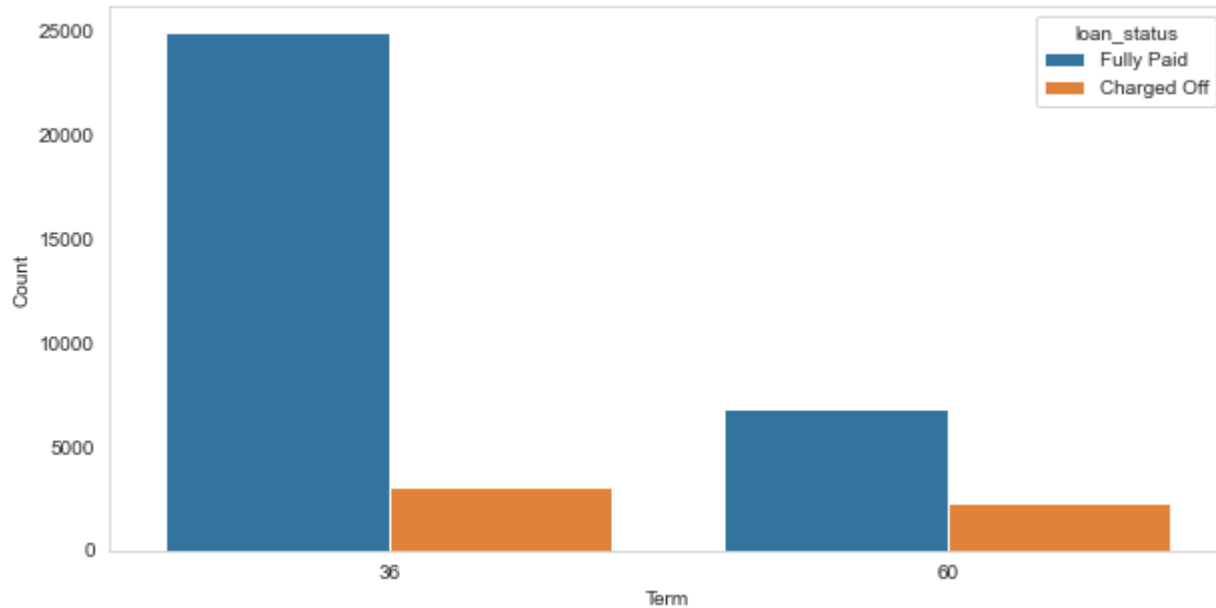
Loan Status: The number of charged off loan is quite smaller(14.41%) compared to total count.



Loan Amount: It varies from 500 to 35000 with a median of 10000. Loan amount is majorly small and very few clients have taken large loans and larger it goes we have higher chance of defaulting.

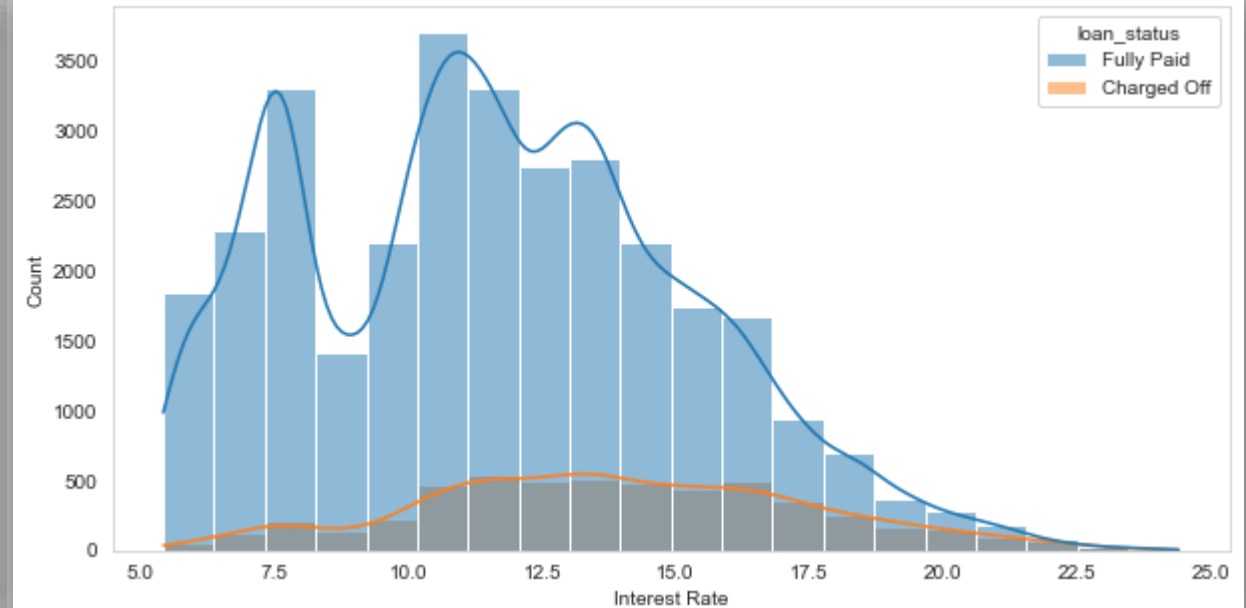
TERM AND INTEREST RATE

Distribution of Term For Loan Status



Loan Term: The Loans taken for 36-month term are much more than 60 months and have lower chance of defaulting.

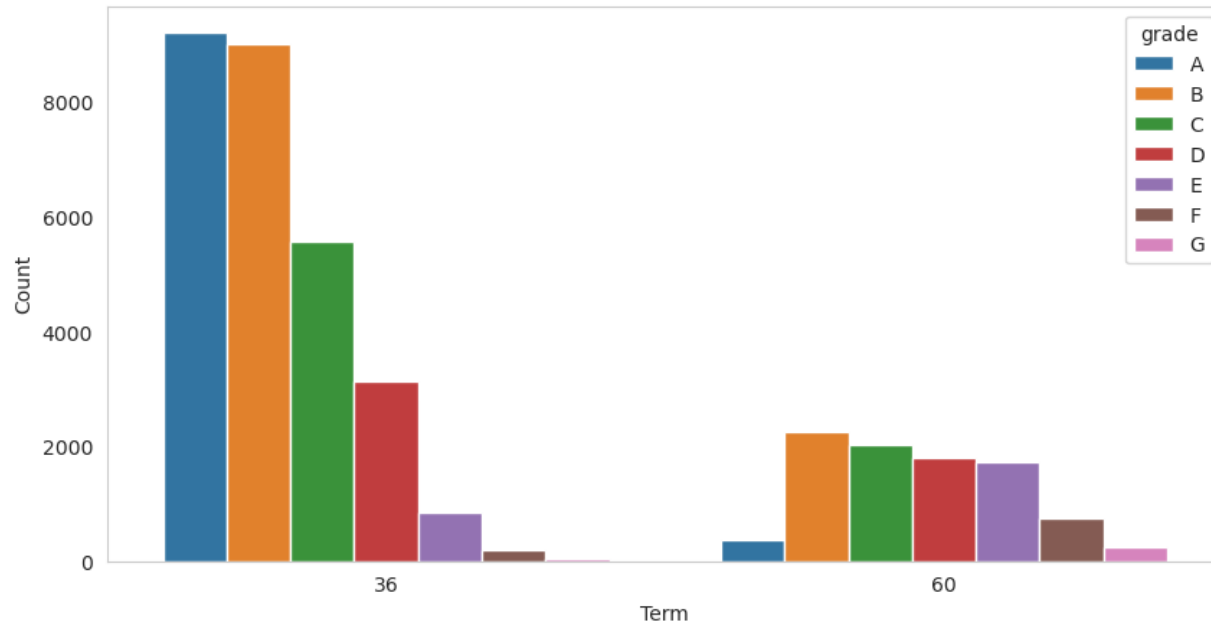
Distribution of Interest Rate For Loan Status



Interest Rate: The count of loan taken varies with interest rate showing peak around in 5-15 bracket and decreasing slowly whereas the chance of defaulting increases with interest rate.

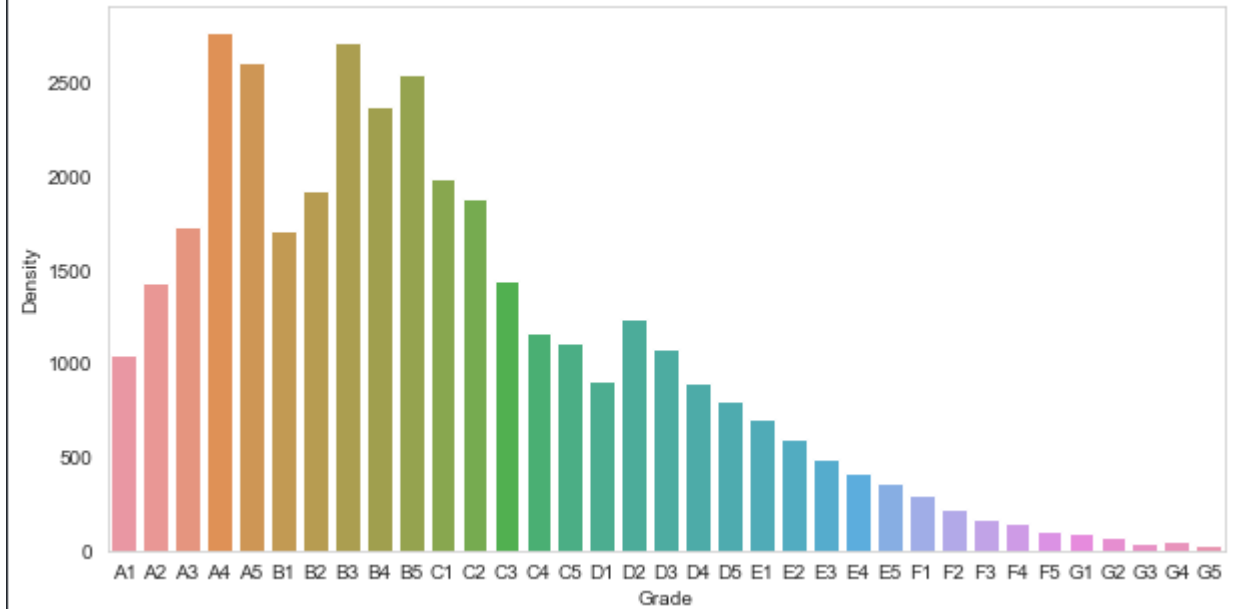
GRADE AND SUB-GRADE

Distribution of Term For Grade



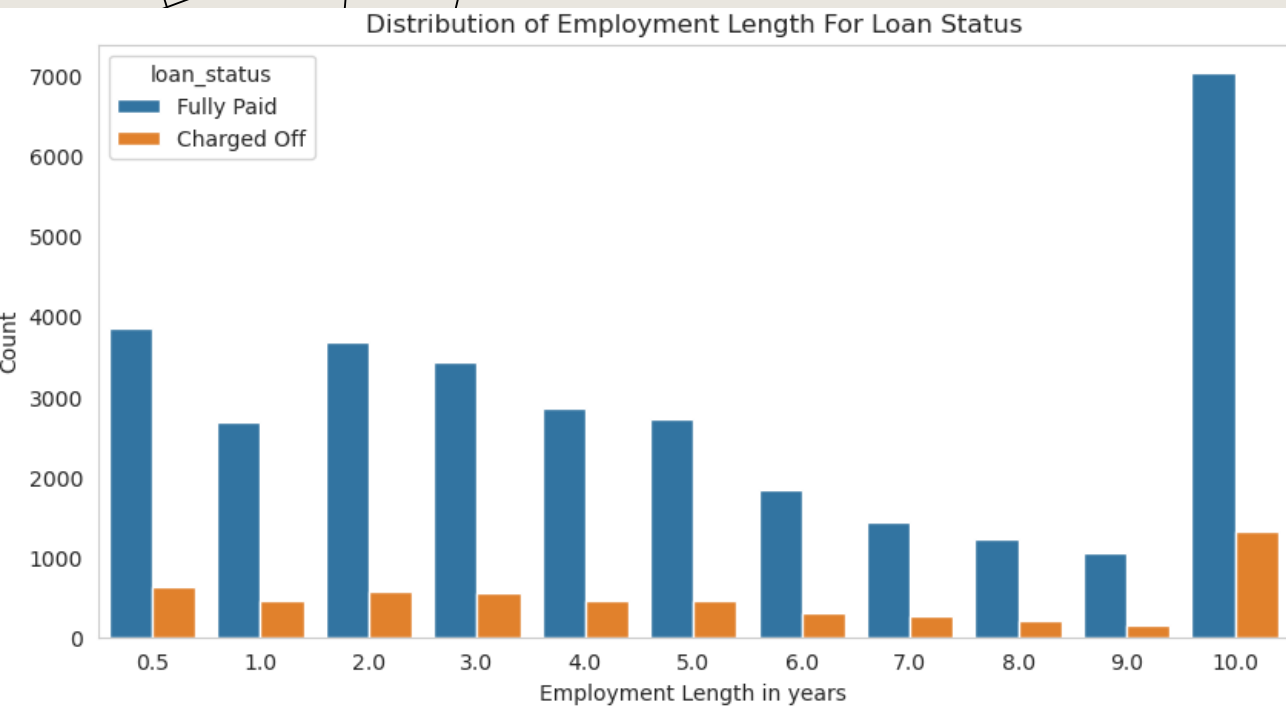
Grade: The loan approved are majorly of higher grade as they are of low risk thus low chance of defaulting. 60 month term loans have larger number of lower grade loans with high risk.

Distribution of Secondary Grade

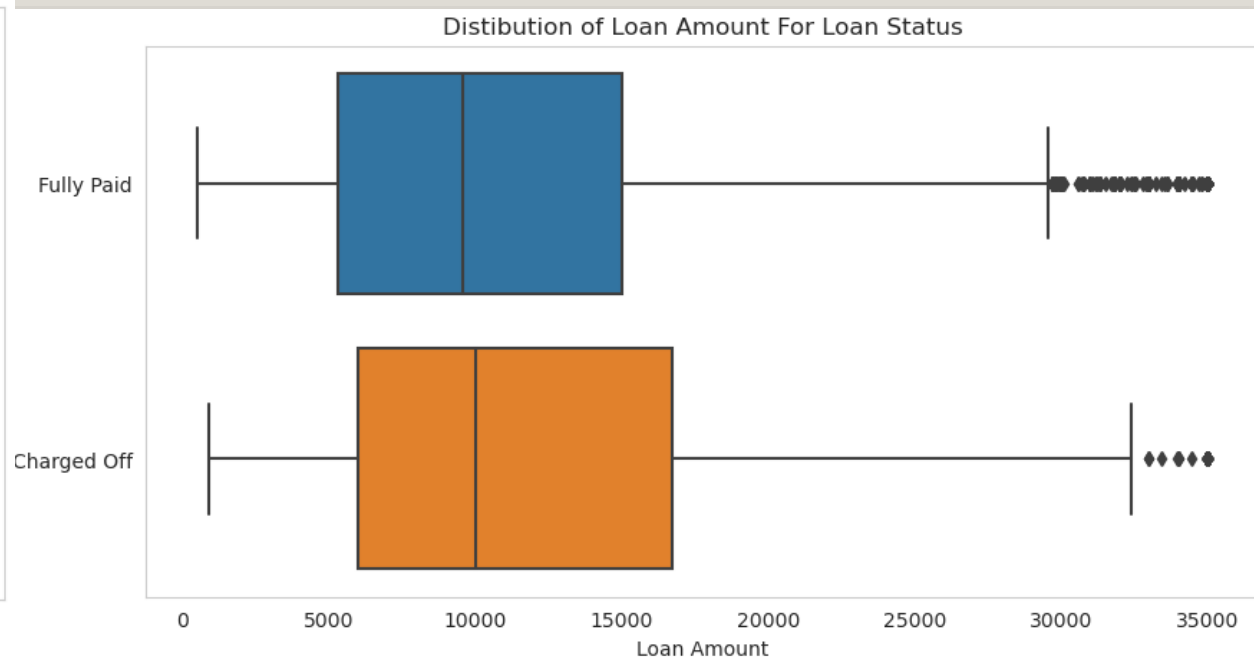


Sub Grade: This provides more insight that the loans within grade are more skewed towards lowered sub grades.

Employment Length & Homeownership



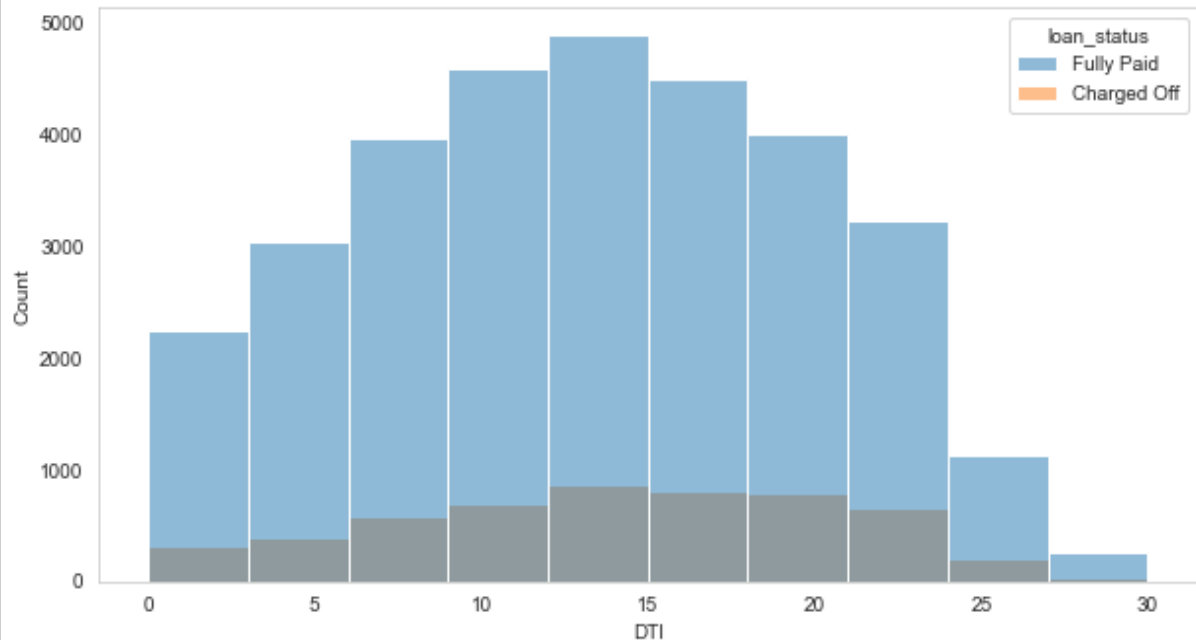
Employment Length: Majority of clients have 10+ years of experience and has highest number of defaulted loan.



Loan Amount: It varies from 500 to 35000 with a median of 10000. Loan amount is majorly small and very few clients have taken large loans and larger it goes we have higher chance of defaulting.

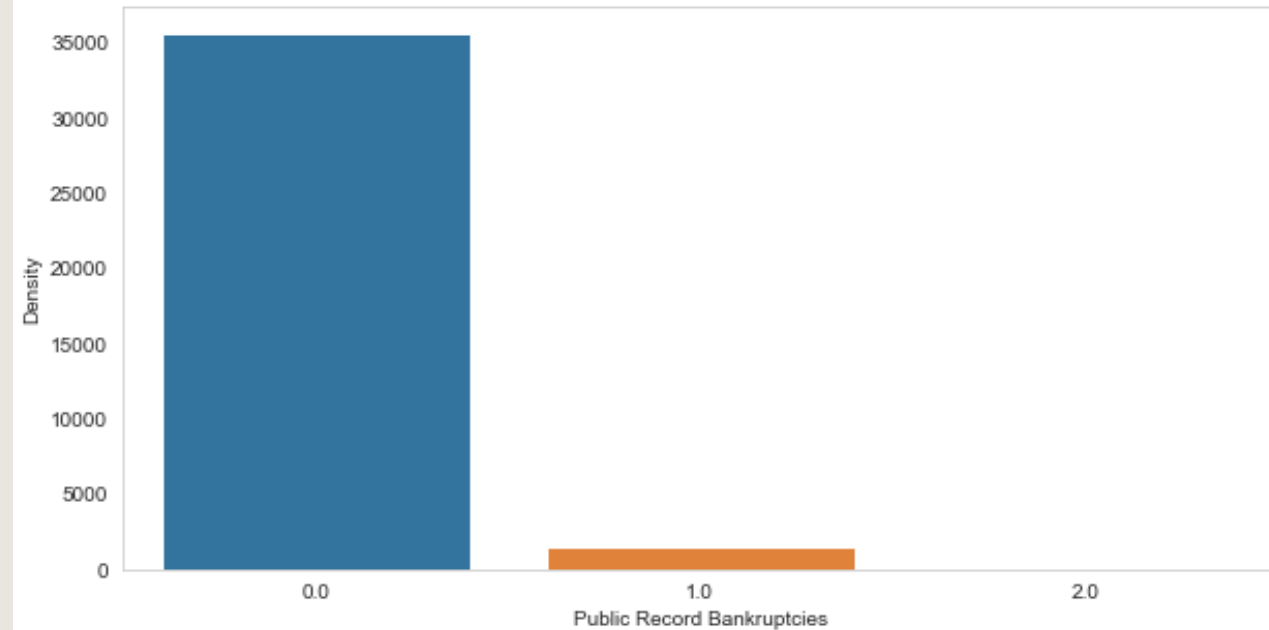
DTI RATIO & BANKRUPTCY

Distribution of DTI For Loan Status



DTI: The large percentage of Clients have a large Debt to Income ratio which shows that lending to such clients can be very risky.

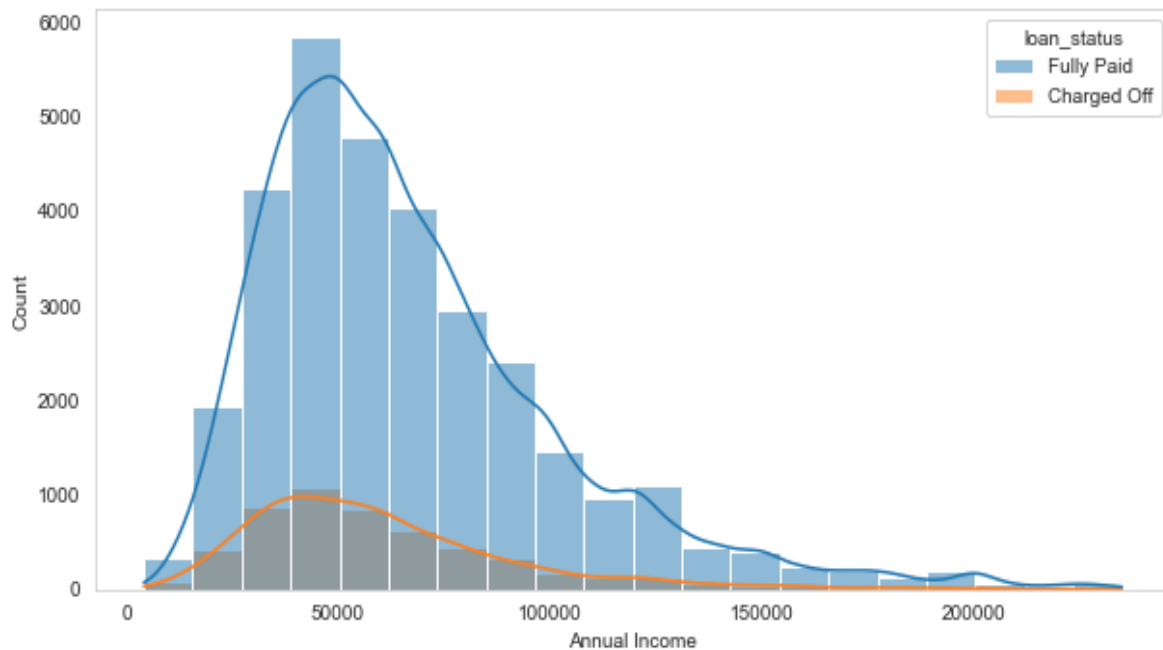
Distribution of Public Record Bankruptcies



Public Recorded Bankruptcy: Majority of clients have no record of declaring bankruptcy.

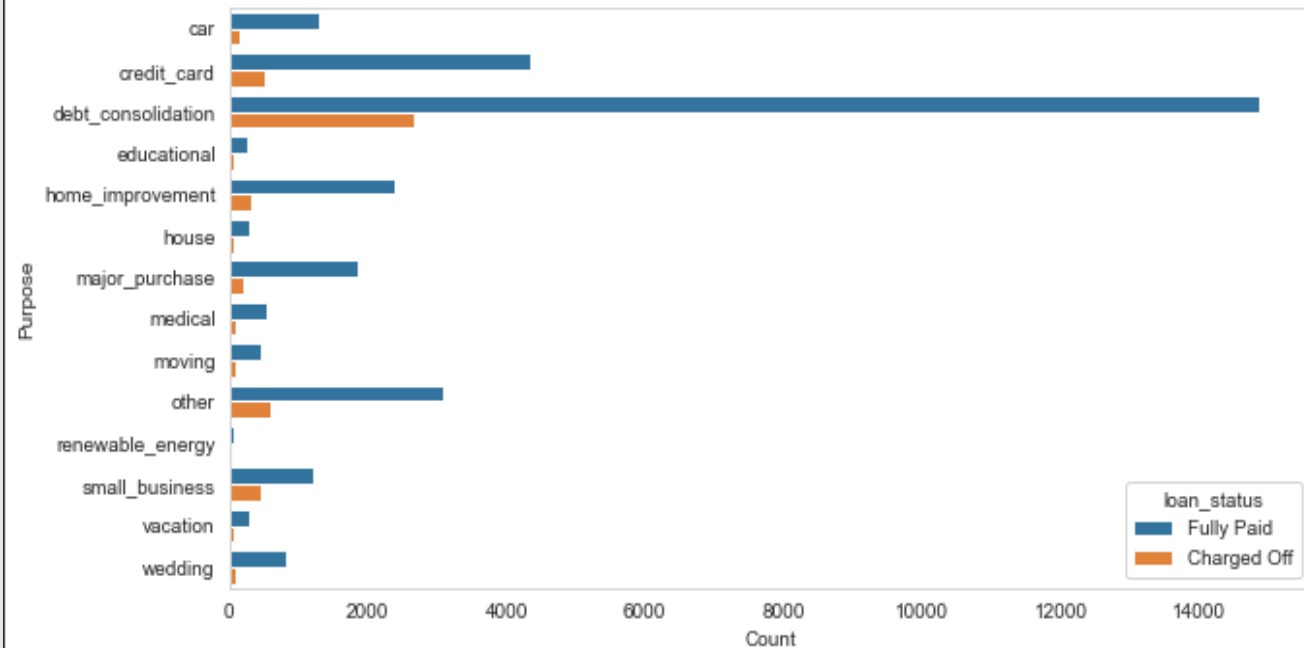
ANNUAL INCOME & PURPOSE

Distribution of Annual Income For Loan Status



Annual Income : The Majority of clients have low annual income compared to rest and income lower than 50k has higher chance of defaulting.

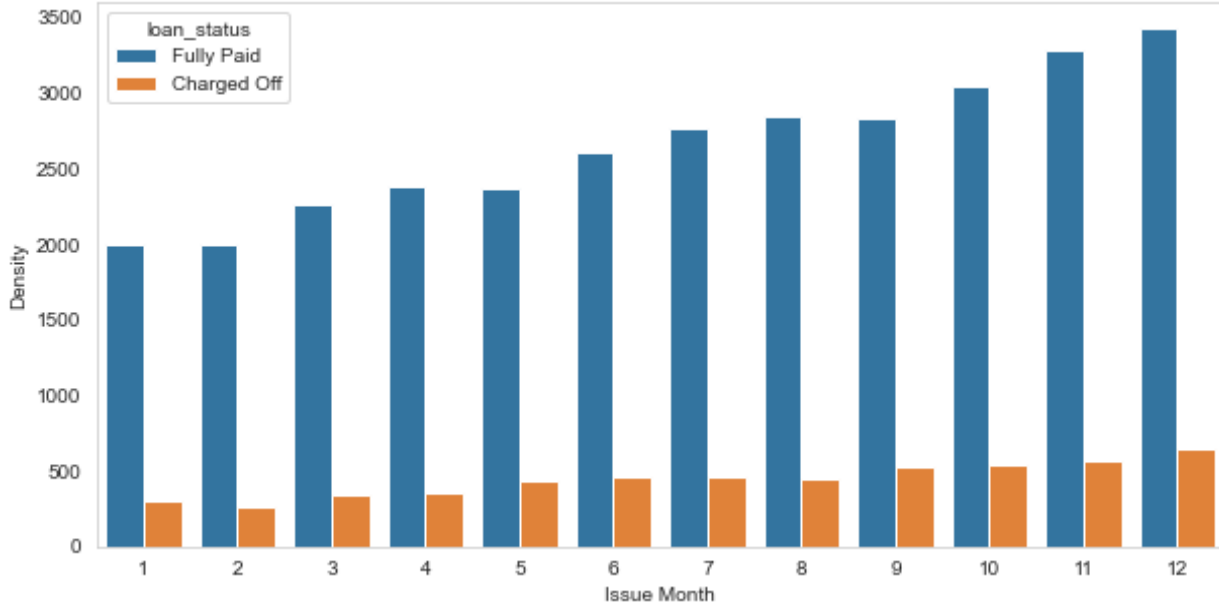
Loan Taken For Different Purposes



Purpose: Loans are taken mostly for debt consolidation followed by credit card payment. Whereas the debt consolidation has highest fully paid loan but also has highest defaulted loans as well.

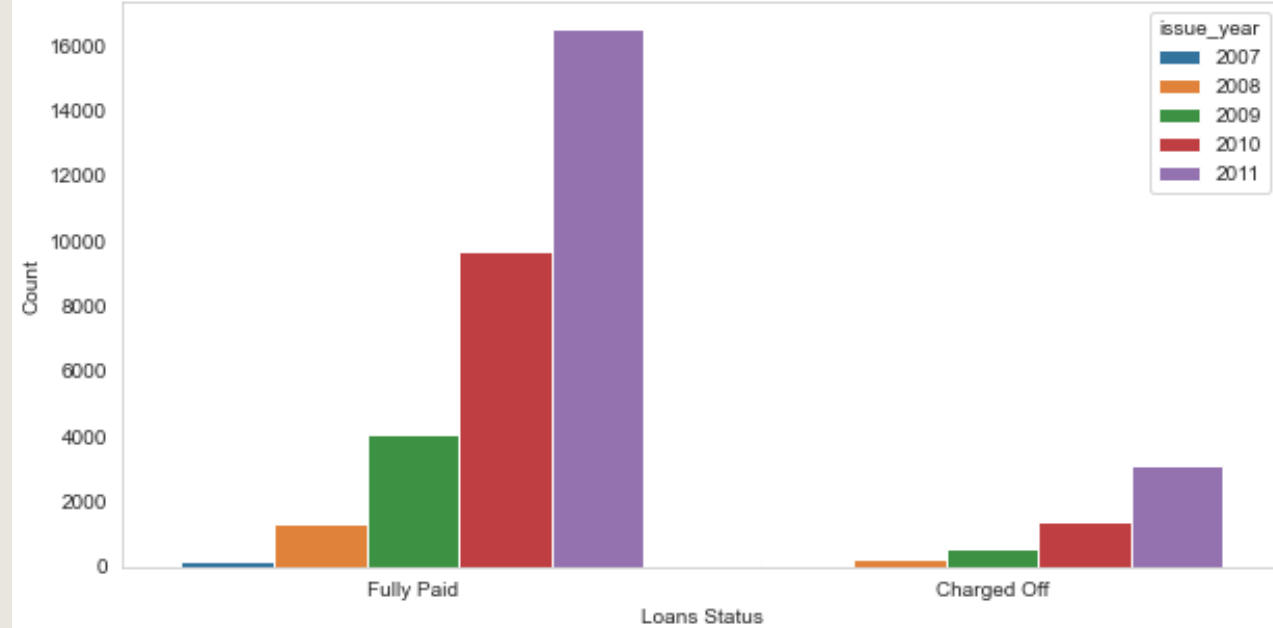
LOAN TREND OVER YEARS

Distribution of Loan Issue Month



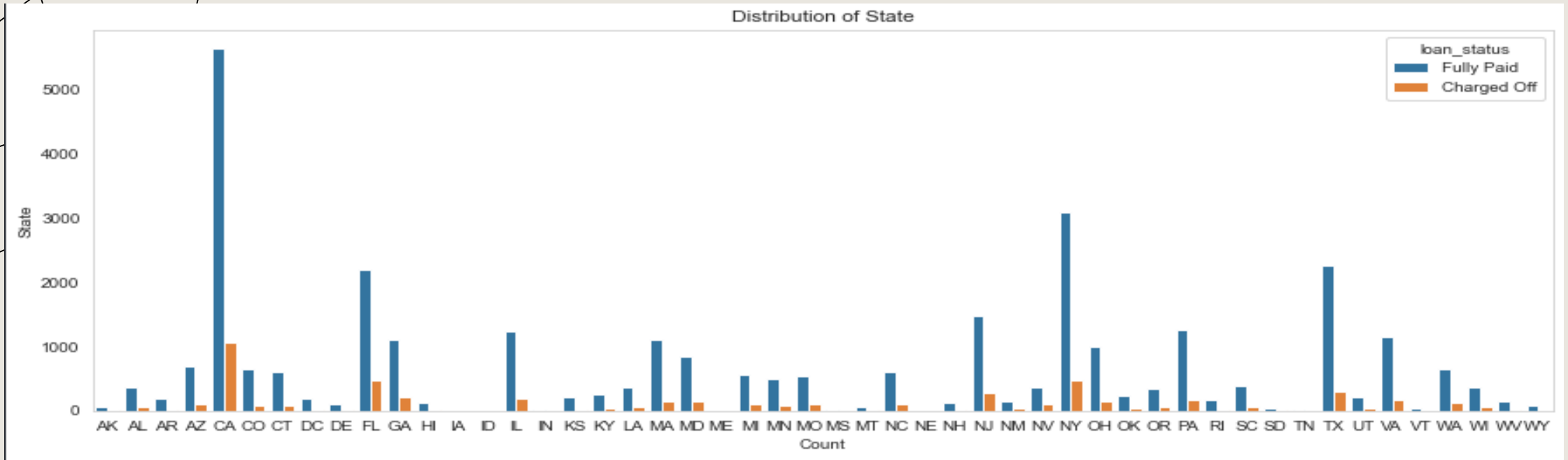
We see a gradual increase in loan taken through the year, with lesser defaulting rate in April ,August, December quarter wise and better more late in year.

Distribution of Loan Status For Issue Year



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

LOCATION BASED



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.

RECOMMENDATIONS AND INSIGHTS

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 10+ years.

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THANK YOU