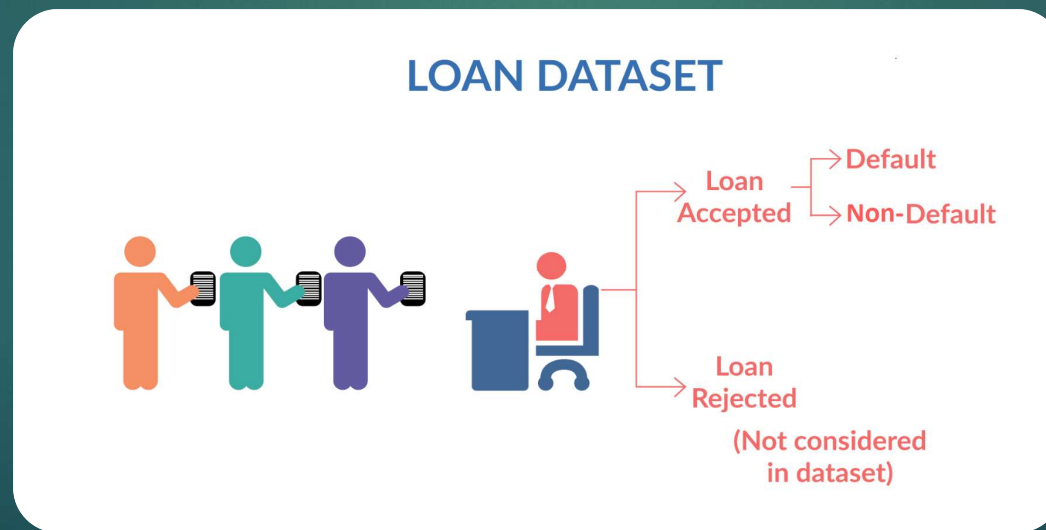# Lending Club Case Study

BY:

MAMTA KHUBCHANDANI

SAI VENKATA SRIVATHSA

Business Objectives :

This company 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.

Objective / Problem Statement :

Identify the driving factors (or driver variables) behind loan default (Charged off), i.e. the variables which are strong indicators of default. The company can utilize this knowledge for its portfolio and risk assessment.
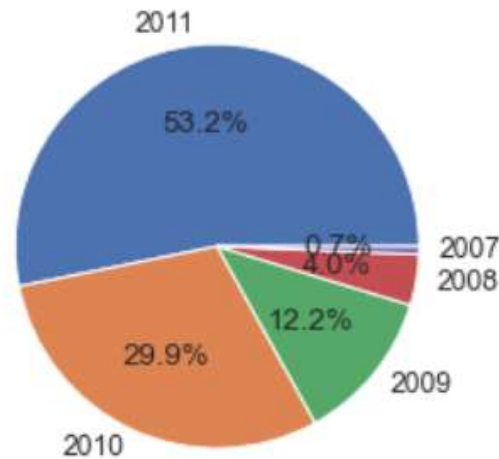
Analysis / Observation :

* Overall Default Rate stands at 14.6%.
* Overall Maximum loans are issued in 2010 (29.9%) and 2011 (53.2%).
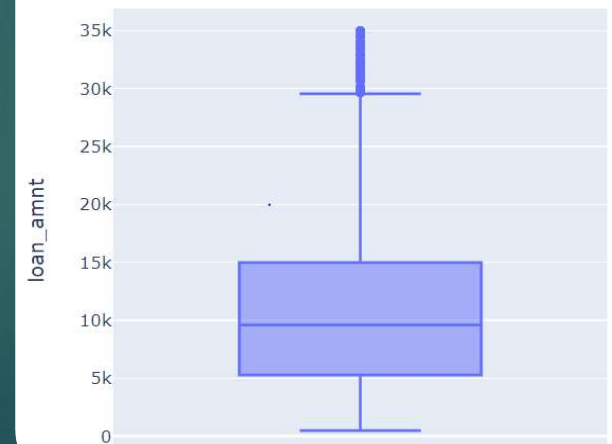* Most of the loan amount are taken 10,000.
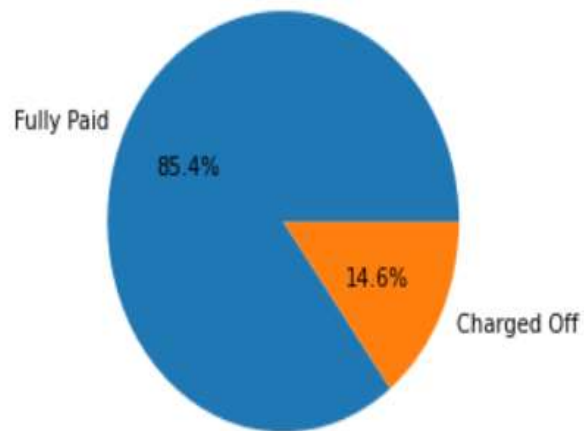
Observation :

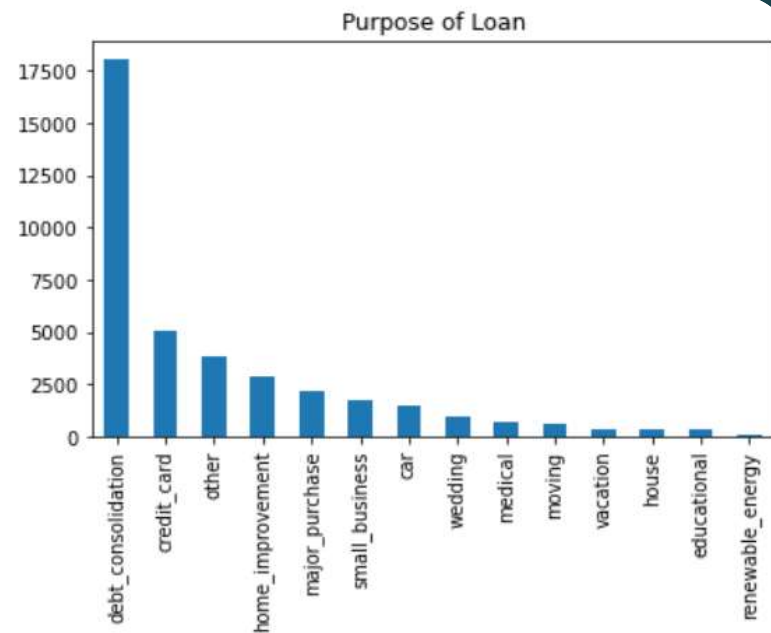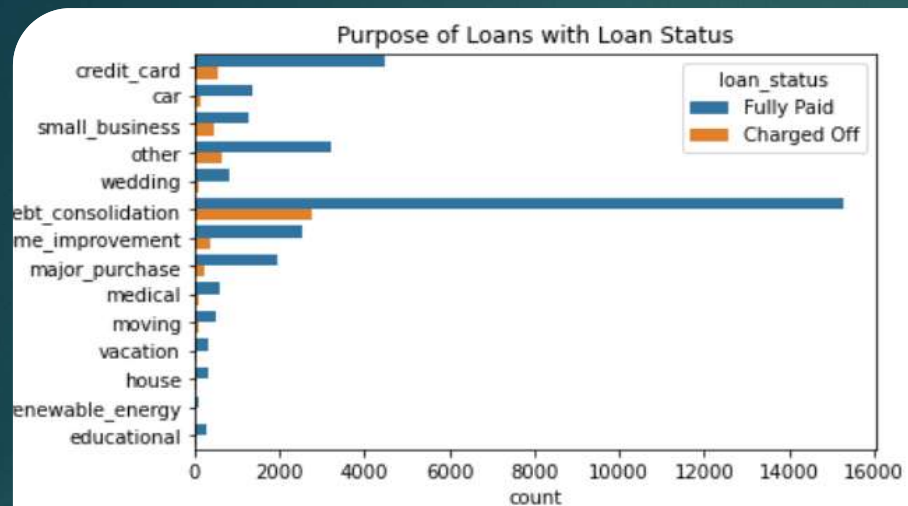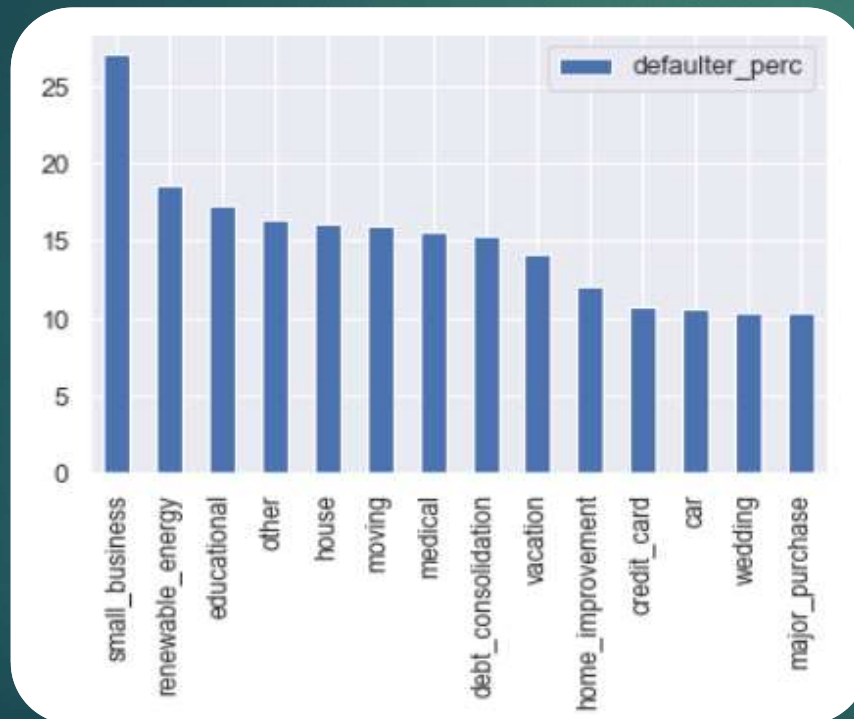   * Maximum Loans are taken for Debt Consolidation Purpose.

    * Debt Consolidation also has highest number of defaulters.

Observation :

Highest percentage of defaulter according to loan purpose are from Small Business then Renewable Energy and then Education.

small_business-27.08% , renewable_energy-18.63% , educational-17.23%

|	defaulter_perc
small_business	27.08
renewable_energy	18.63
educational	17.23
other	16.38
house	16.08
moving	15.97
medical	15.57
debt_consolidation	15.33
vacation	14.13
home_improvement	12.07
credit_card	10.78
car	10.67
wedding	10.37
major_purchase	10.33

Observation :

- **Most of the Loans applied are people with 10 and 10+ Years of experience.**

- **Loan Grades highly applied are B, A and C.**

- **Grade A loan has the lowest interest rate, while a grade G loan has the highest interest rate.**
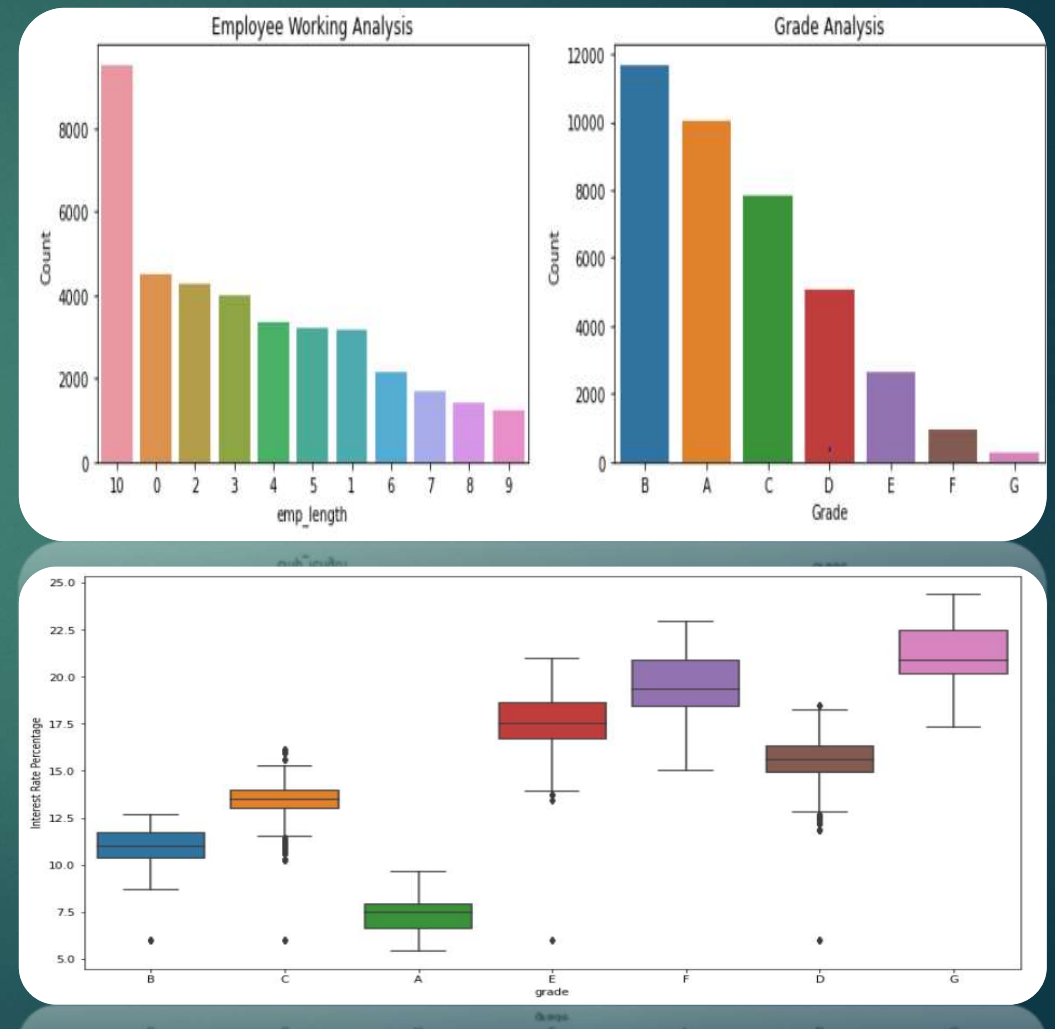
Analysis on grade against Charged off / Defaulter :

* Grade "A" has very less chances of charged off.
* Grade "F" and "G" have very high chances of charged off.
* Chances of charged off is increasing with grade moving from "A"
  towards "G"
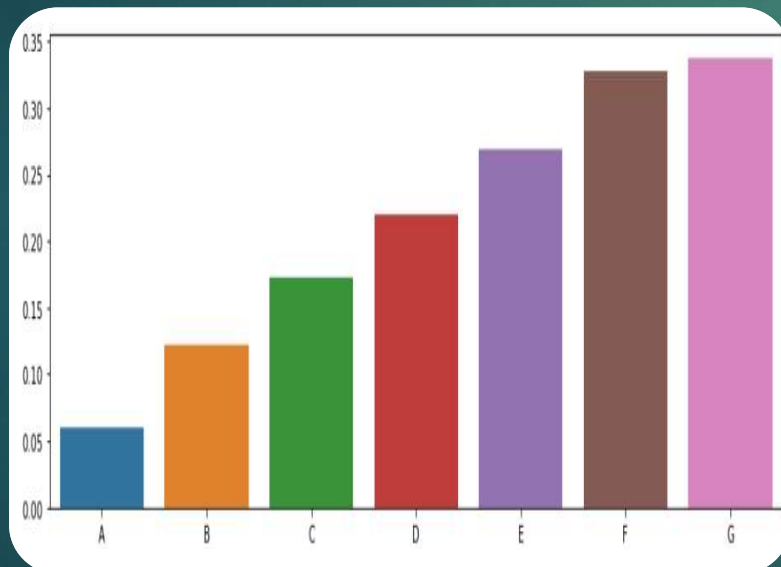
| loan_status	grade	Charged Off	Fully Paid	Total	Chargedoff_Proportion
6	G	101	198	299	0.34
5	F	319	657	976	0.33
4	E	715	1948	2663	0.27
3	D	1118	3967	5085	0.22
2	C	1347	6487	7834	0.17
1	B	1425	10250	11675	0.12
0	A	602	9443	10045	0.06

Observation :

* Interest Rate Vs Loan Status shows significant variation explaining that higher interest rate leads to a higher charge off rate chances.
* Annual Income Vs Loan Status shows Slight variation explaining that the annual income for the Charge Off status is lower.
* Borrowers with high loan amount to income ratio are likely to default on their loans more.
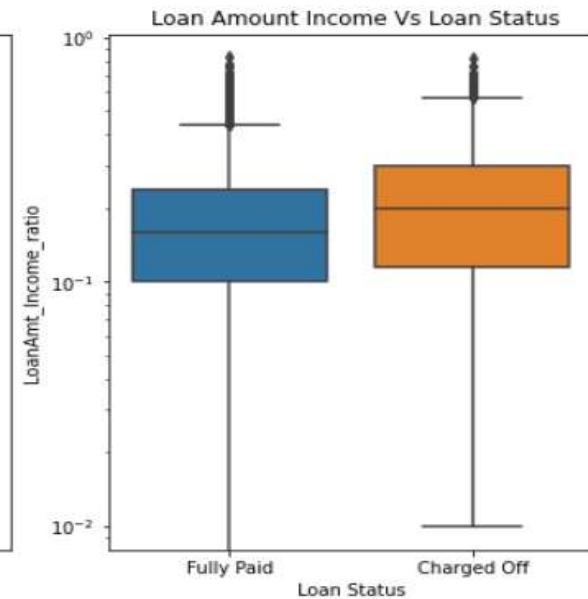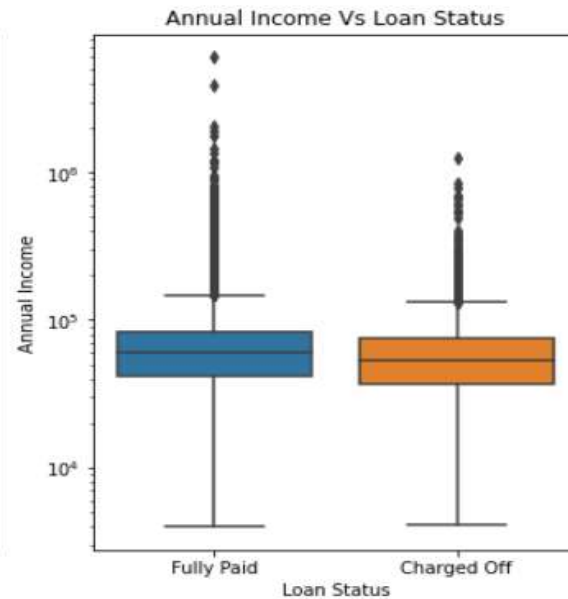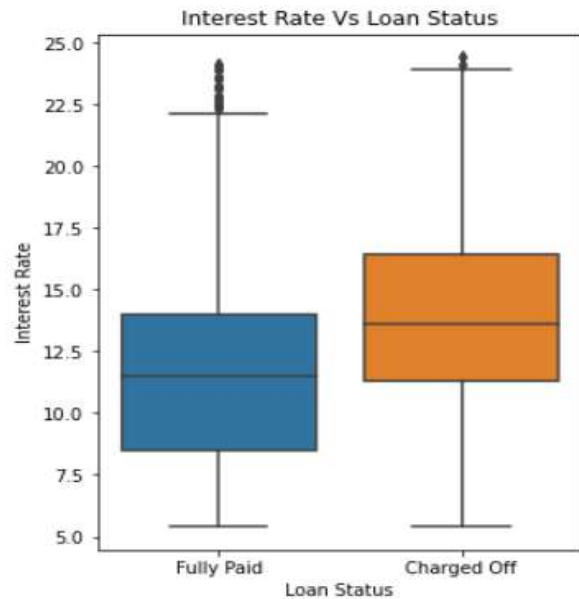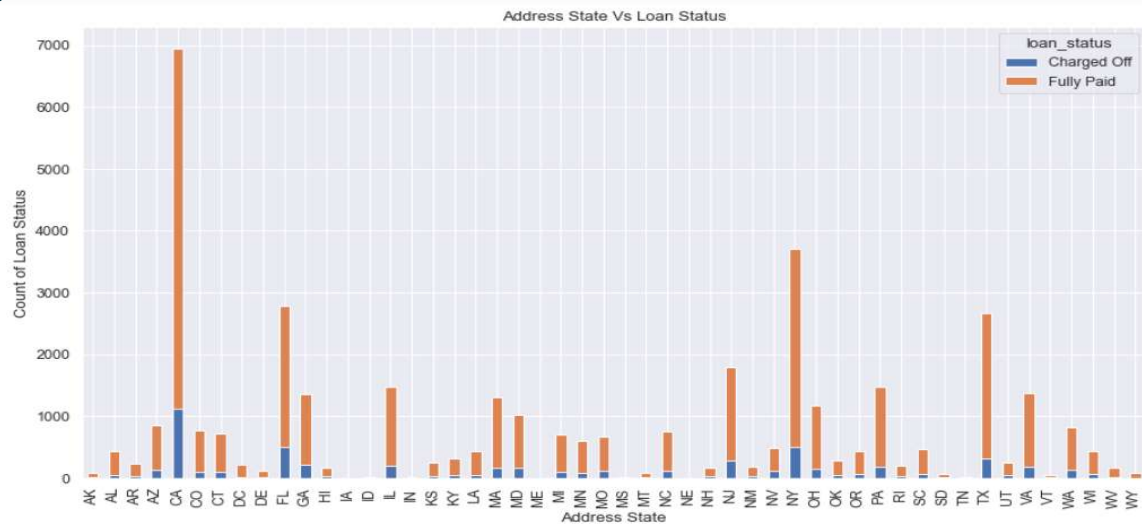
Observation :

* Loan with 36 months term is more likely to default than 60 months term.

* More number of Charge Off profiles have the Home Ownership under Mortgage or Rent.
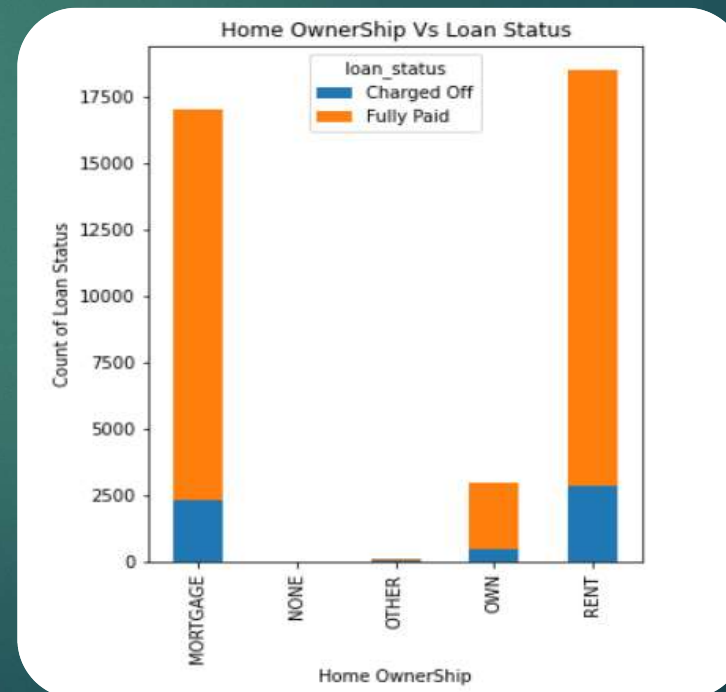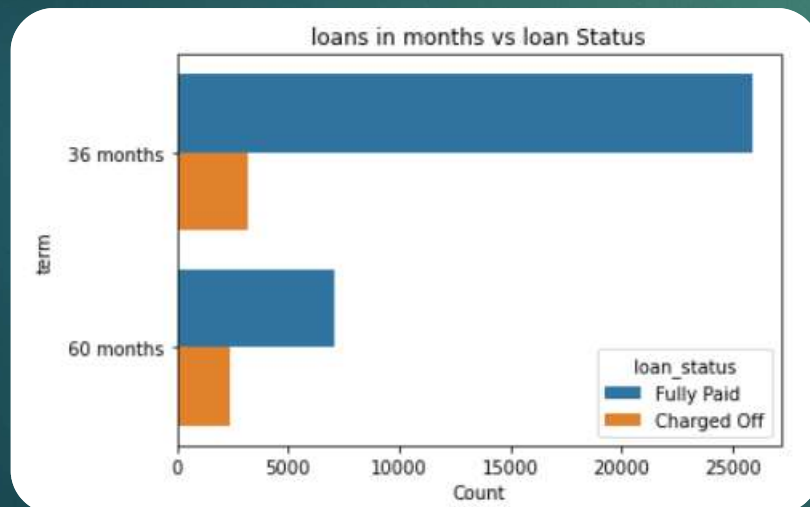
Observation :

* There is only a slight variation in the charged Off between Verified and Non verified profiles.

Address State Vs Loan Status

Loan Applications Distribution Across Timeline
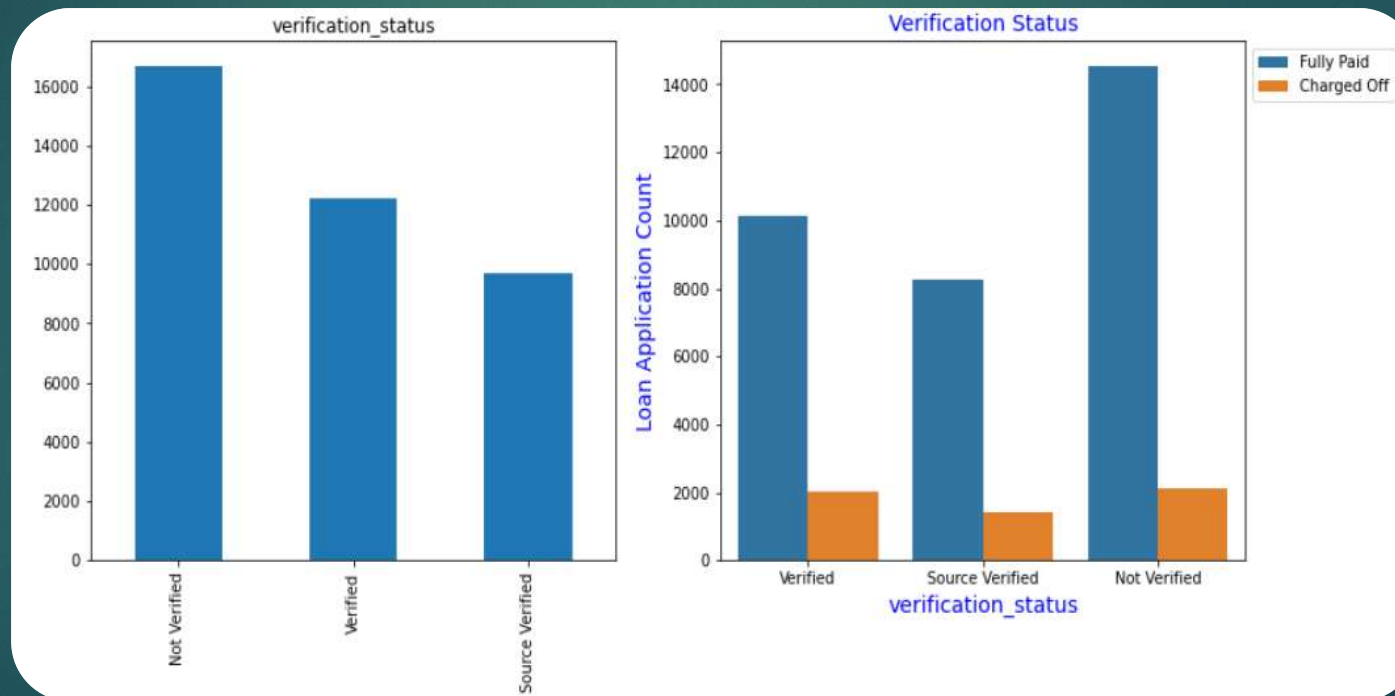
Observation :

 * Loans from the regions of CA,NY and FL have more charge Off.

* There is an increase in the number of loans processed every Year.

* There is decrease in Loan processed from May 2008 - Dec 2008. Probably due to Recession.
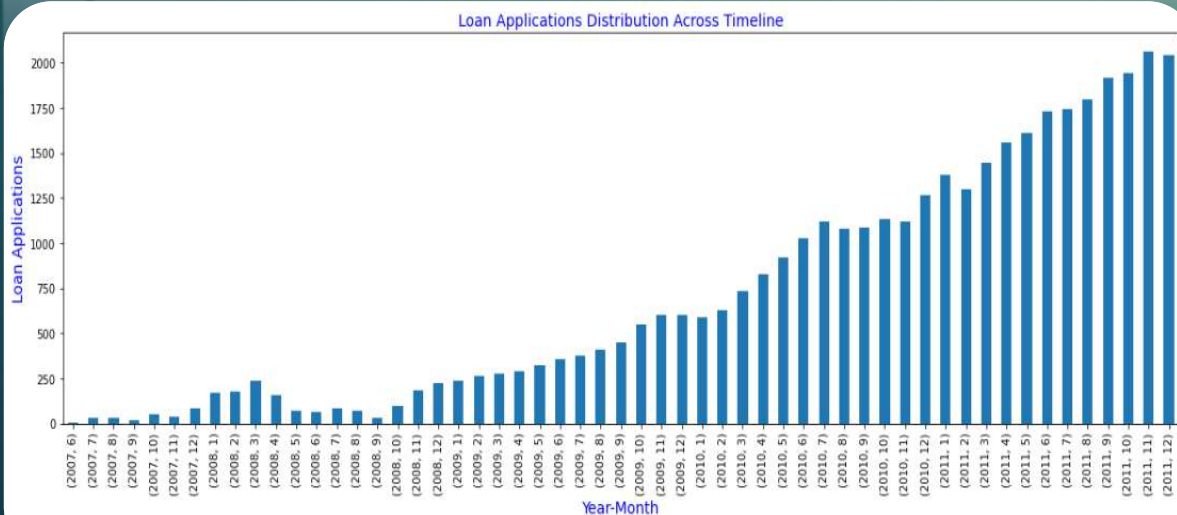
Highest number of loans are issued in November and December. Probably due to some promotion campaign during festive season.

Conclusion :

❖ **Grades: Grade "G" have very high chances of defaulter. Grade "A" has very less chances of defaulters.**

❖ **Loan purpose: Highest percentage of defaulters according to loan purpose are from Small Business then Renewable Energy and then Education.**

❖ **Annual Income: Borrowers with high loan amount to income ratio are likely to defaults.**

❖ **House Ownership: More number of defaulters profiles have the Home Ownership under Mortgage or Rent.**

❖ **Loan Tenure: Loan with 36 months term is more likely to default than loan with 60 months term.**

❖ **Rate of Interest: Borrowers with high rate of interest are likely to defaults.**

❖ **Employee Length : Employee with higher years of experience are likely to defaults. Most of the defaulters are 10 and 10+ years.**