# LENDING CLUB CASE STUDY

# SUBMISSION

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# Introduction

**Project brief:**

A consumer finance company 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.

**Business and Data Understanding :**

• Two types of risks are associated with the bank's decision are as listed below :

1. If the applicant is likely to repay the loan, then not approving the loan results in a loss of business to the company
2. f 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.

**Business objective & Strategy:**

To use EDA to understand how consumer attributes and loan attributes influence the tendency of default.
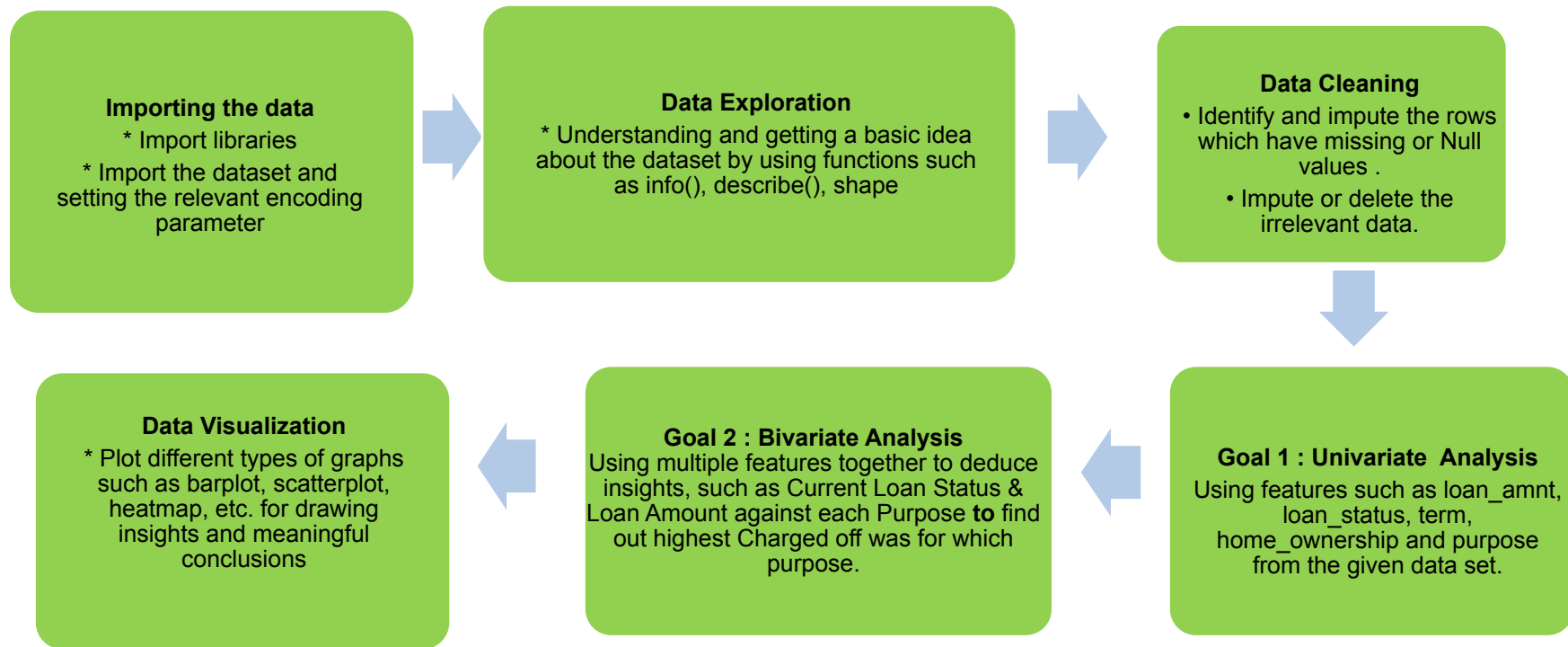
**Goals of Data Analysis**

The 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 utilise this knowledge for its portfolio and risk assessment using the below concepts of EDA.
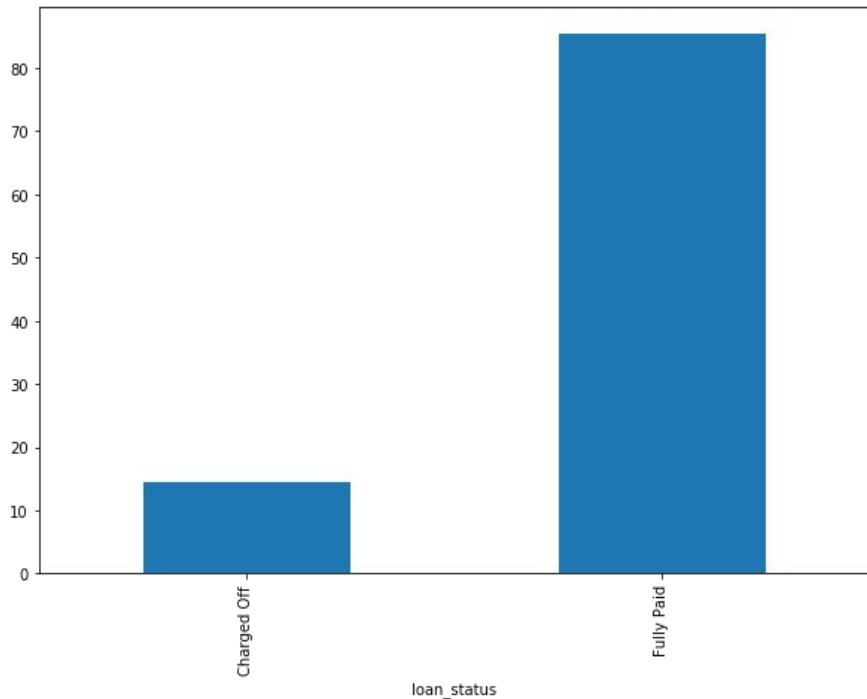
• Univariate Analysis

• Bivariate Analysis

**Dataset used:**

• loan.csv •Data_Dictionary.xlsx

# Problem solving flowchart

**Importing the data**

* Import libraries

* Import the dataset and setting the relevant encoding parameter

**Data Exploration**

* Understanding and getting a basic idea about the dataset by using functions such as info(), describe(), shape

**Data Cleaning**

• Identify and impute the rows which have missing or Null values .

• Impute or delete the irrelevant data.

**Goal 1 : Univariate Analysis**

Using features such as loan_amnt, loan_status, term, home_ownership and purpose from the given data set.

**Goal 2 : Bivariate Analysis**
Using multiple features together to deduce insights, such as Current Loan Status & Loan Amount against each Purpose **to** find out highest Charged off was for which purpose.

**Data Visualization**

* Plot different types of graphs such as barplot, scatterplot, heatmap, etc. for drawing insights and meaningful conclusions
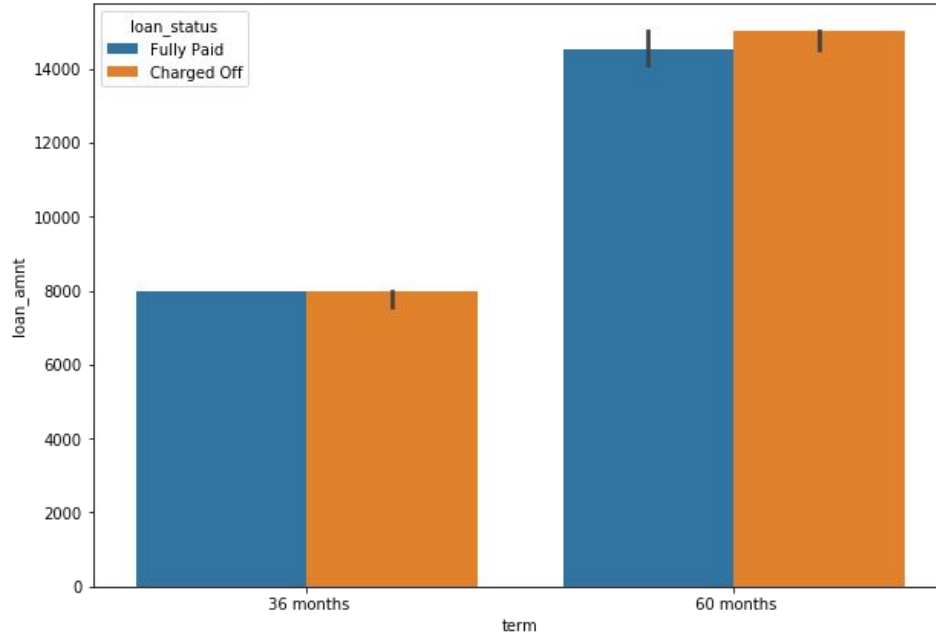
# Results : Univariate Analysis



From the above plot we can say that most of the people are paying the loan completely.
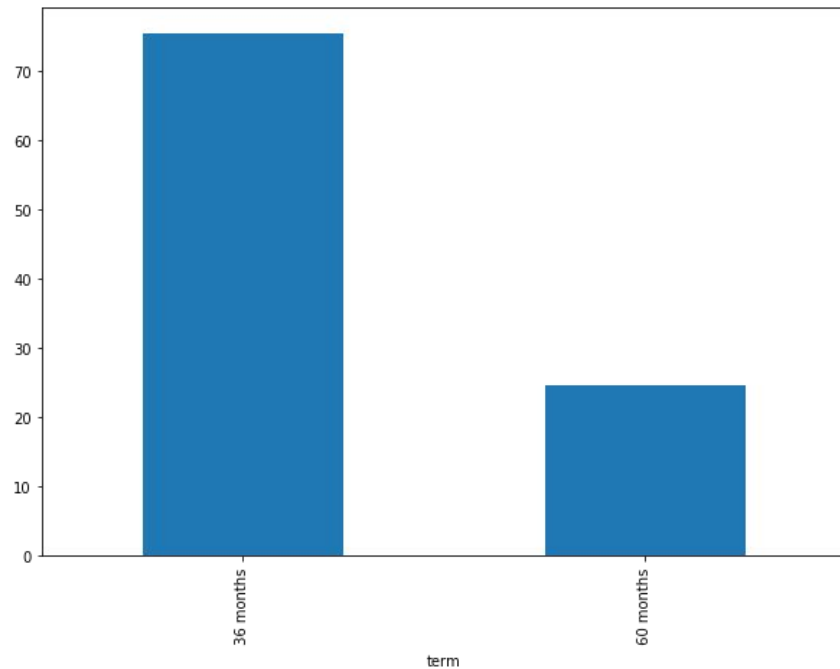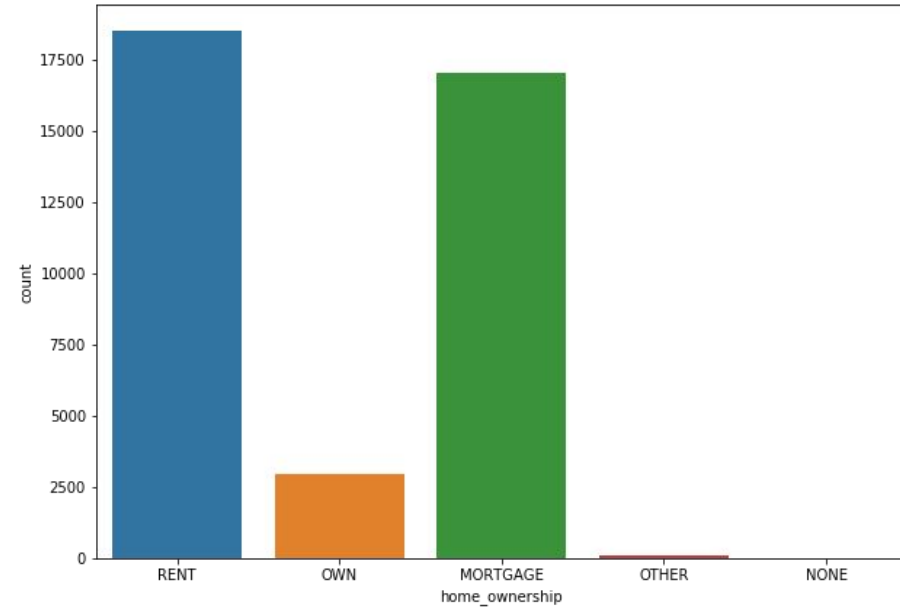
From the above plot we observe that there are more than 70% people who take loan for a term of 36 months.
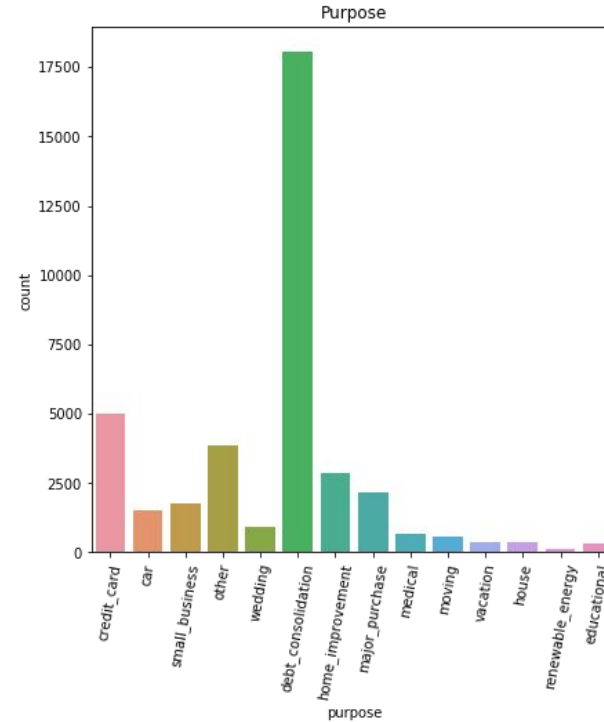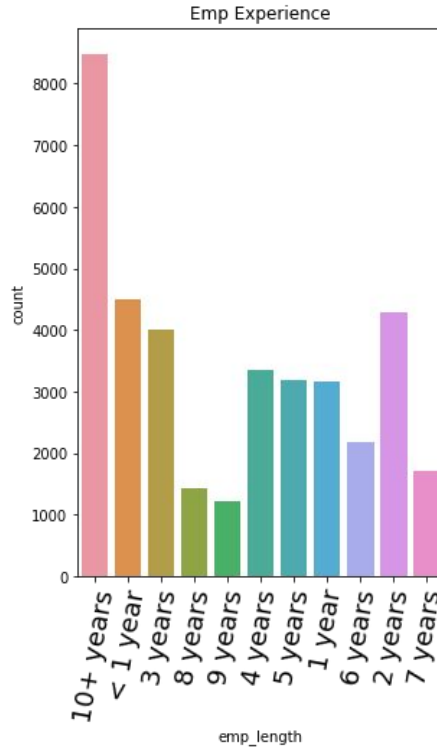
# Results : Univariate Analysis



From the above plot we deduce that loan amount is higher for loan taken for a tenure of 60 months.

From the above Barplot, we observe that majority of the people apply for the loan under RENT category of Home ownership,followed by MORTGAGE, OWN and OTHER and are more likely to take loan..

From the above two graphs, we conclude that people in the experience bracket of 10 years and above are the majority who are taking loans and also that Debt_consolidation is the primary purpose for which people are taking loans.

# Results : Univariate Analysis



Grade count
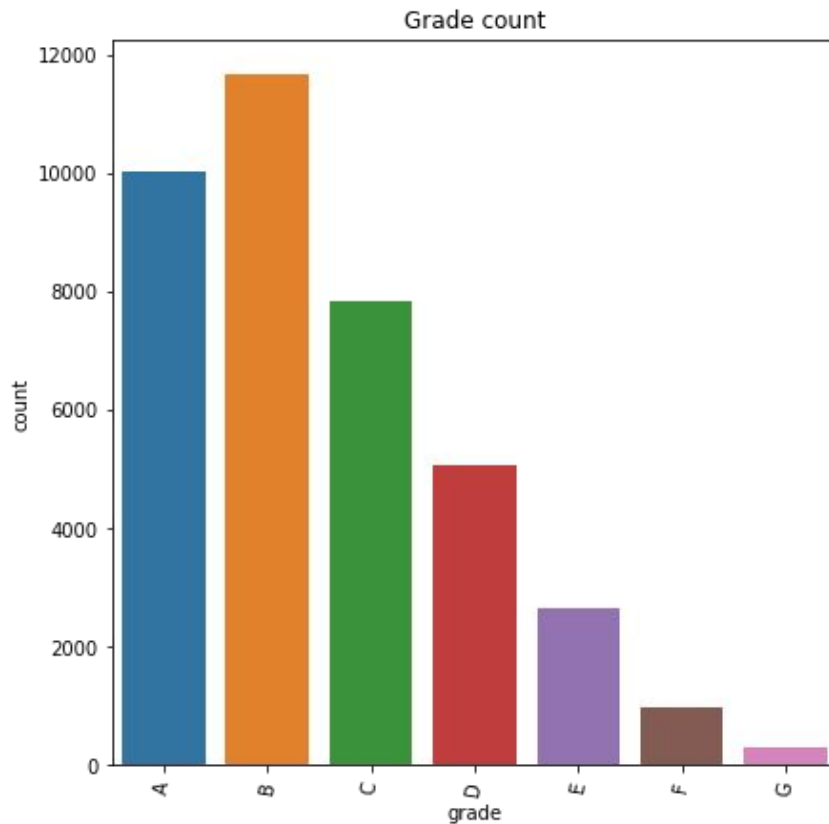
From the adjacent Barplot, we come to a conclusion that people are mostly opting for the 'B' type of Grade loan followed by A,C,D,E,F,G types.

From the below plot, we can see that people who take loan for Debt consolidation are more likely to Default.


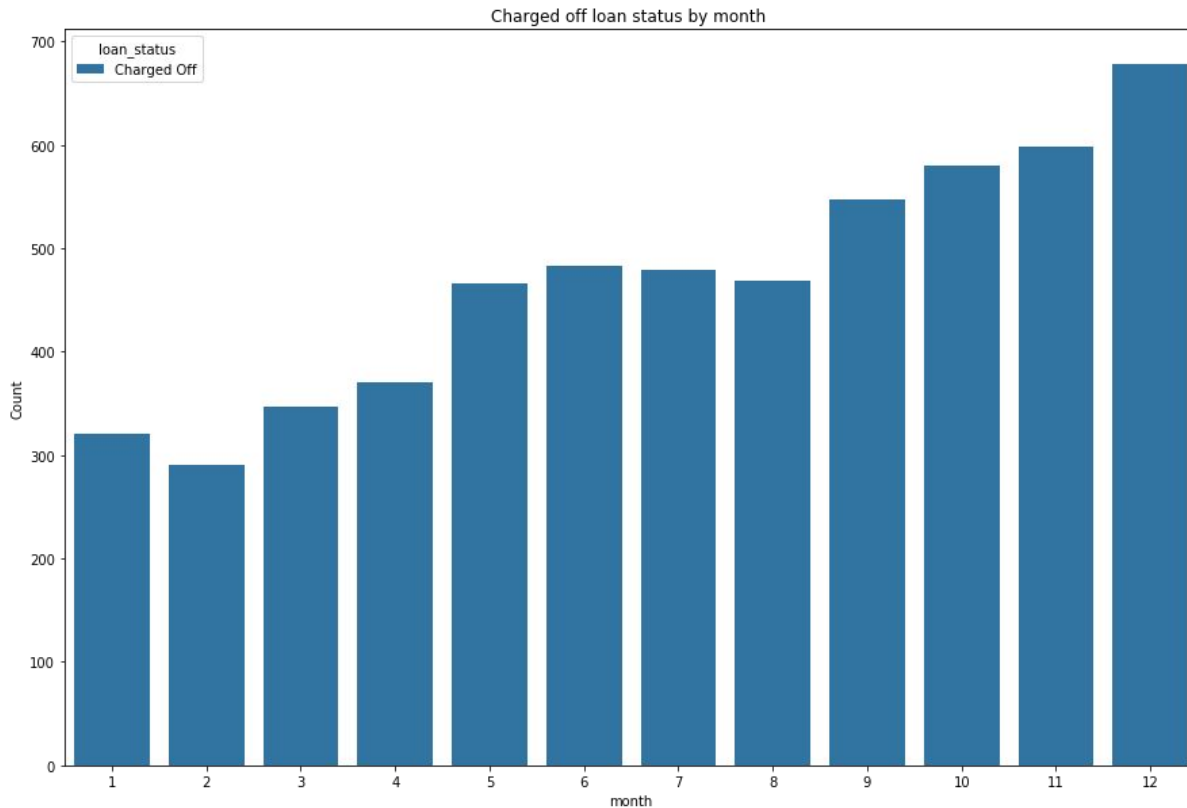
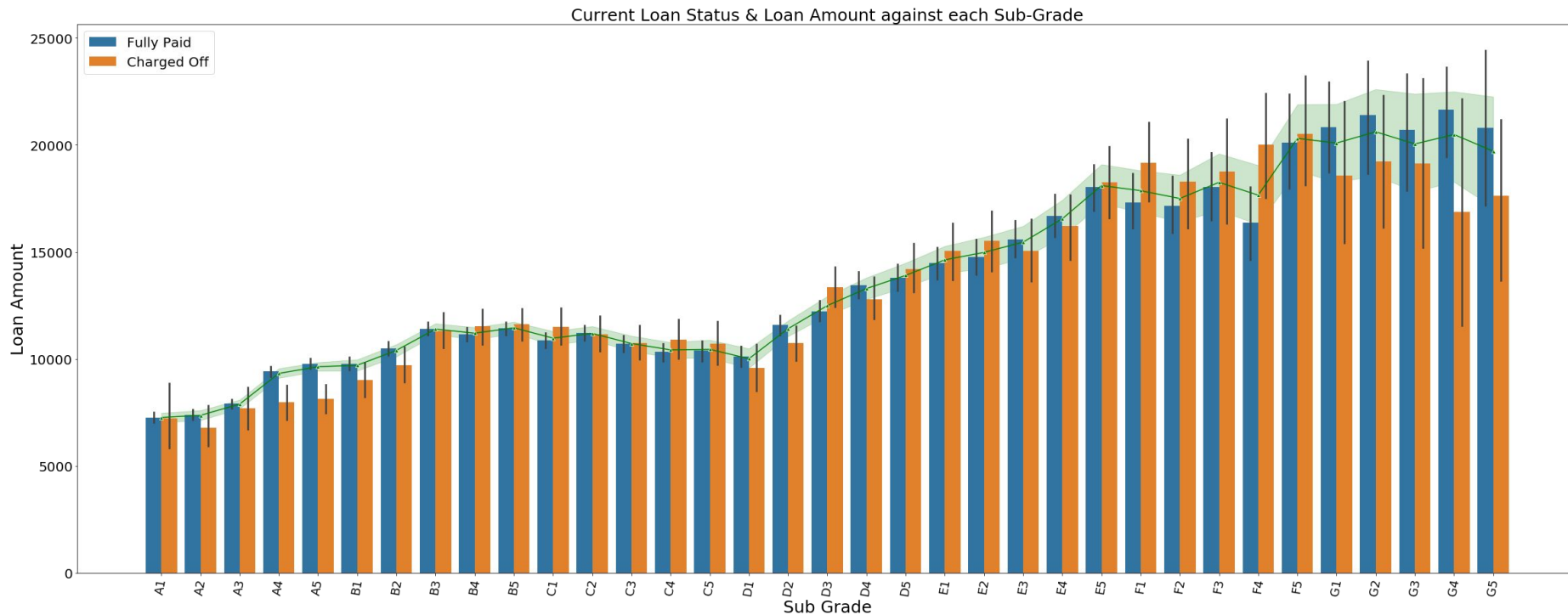Current Loan Status & Loan Amount against each Purpose
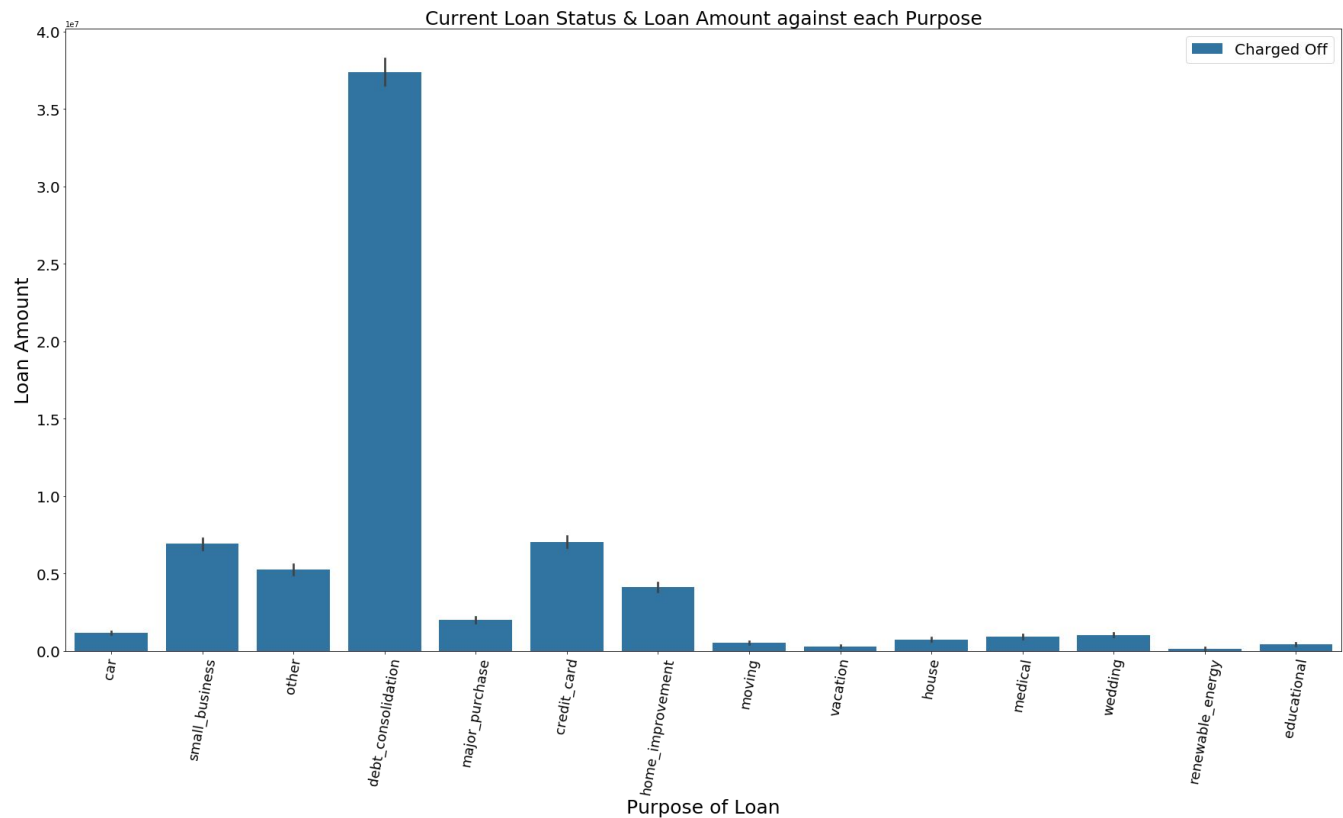
From the below plot we can see that employees who have an annual income of less than 2 lakhs are more likely to possess the loan status of charged off.
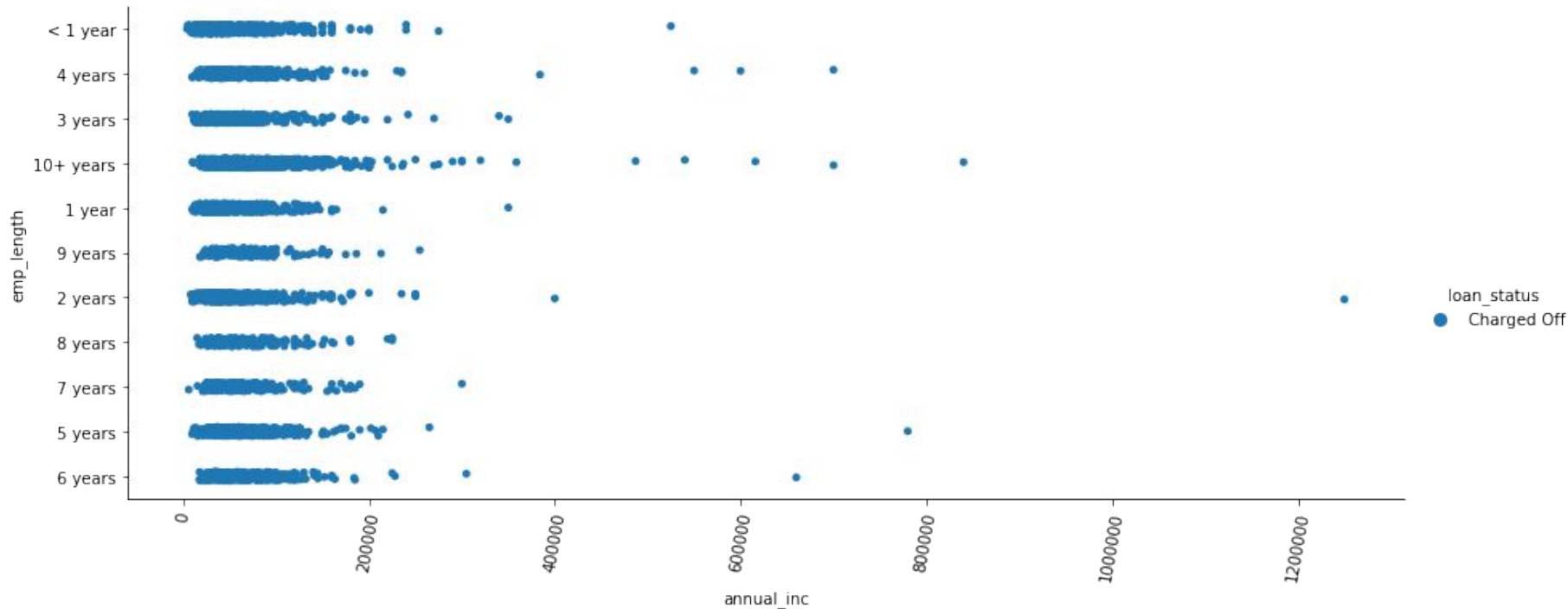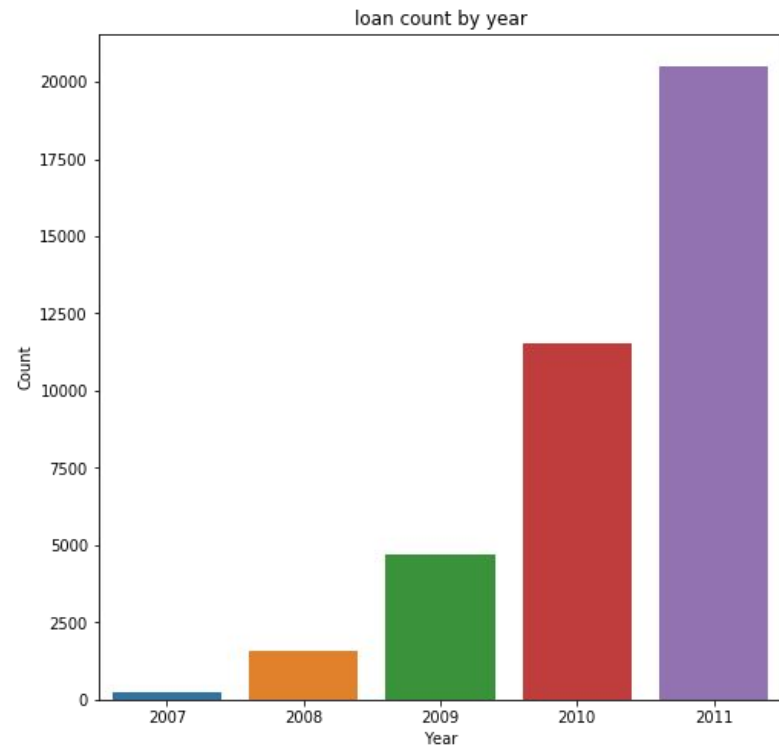
People who take loan in the 4th quarter (october,november,december) are more likely to be Charged Off .

Current Loan Status & Loan Amount against each Sub-Grade

It is concluded from the above plot that the trend observed is that as we move from Grade A to G, the average loan amount borrowed increases.

loan count by year

We observe that the number of people opting for loans are increasing at a rapid rate every year, the lowest being in the year 2007 & the highest number of loan takers being in 2011.



loan count by month and year
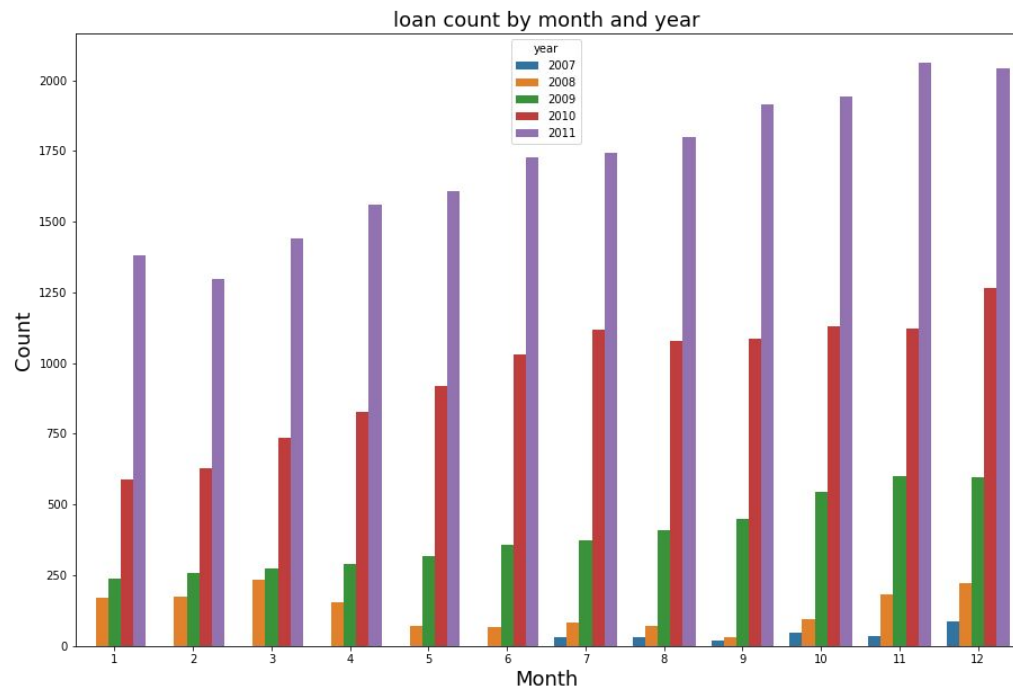
From the above plot we can see that majority of loans were taken in November 2011.
A lot of people seem to be taking loans in the 4th quarter of the year, i.e., in the months of October, November and December .

## Conclusion

Some of the major observations during our analysis are as listed below:

- Loan amount is higher for loan taken for a tenure of 60 months.
- People in the experience bracket of 10 years and above are the majority who are taking loans and also that Debt_consolidation is the primary purpose for which people are taking loans.
- People who take loan for Debt consolidation are more likely to Default.
- People who have annual income less than 2 lakhs are more likely to Default.
- The number of people opting for loans are increasing at a rapid rate every year, the lowest being in the year 2007 & the highest number of loan takers being in 2011.
- A lot of people seem to be taking loans in the 4th quarter of the year, i.e., in the months of October, November and December. Also, the majority of loans were taken in November 2011.