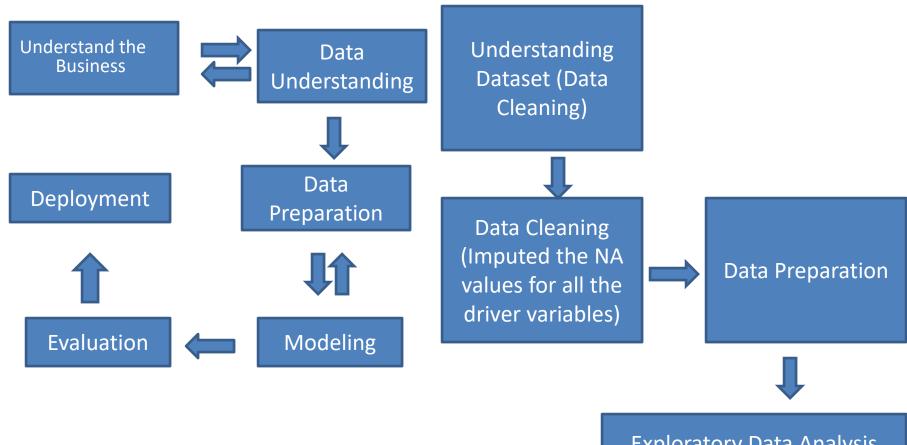# LENDING CLUB CASE STUDY SUBMISSION

-**Adharsh Belagapu**

Case Study Objectives

Identification of Loan Applicants' pattern in taking the decision for loan approval

Understand the 'Driving Factors' or 'Driver Variables' behind Loan Default phenomena

Loan Lending Organizations may choose to utilize this knowledge for its portfolio and risk assessment of new loan applicants

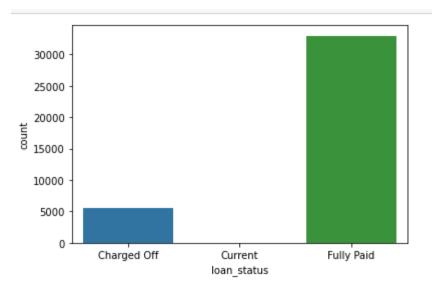# Problem Solving Methodology

Data Cleaning Steps

- **Delete columns:** Delete unnecessary columns.

- **Remove outliers:** Remove high and low values that would disproportionately affect the results of your analysis.

- **Missing values:** Treat missing values with appropriate approach.

- **Duplicate data:** Remove identical rows, remove rows where some columns are identical.

- **Filter rows:** Filter by segment, filter by date period to get only the rows relevant to the analysis.
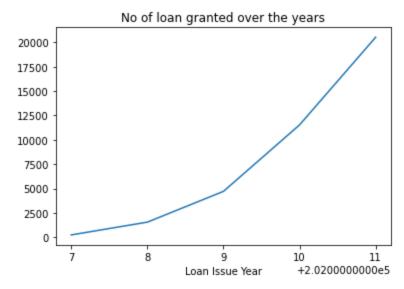
Data Analysis

- The essence of the whole project is to analyze and understand how consumer attributes and loan attributes are influencing the tendency of defaulting.
- We performed data cleaning and preparation on the Loan dataset:

→Imputed the NA values for all the variables

→Created two new columns:

1. Profit and Loss column

2. Ratio of funded amount and annual income

- During univariate analysis we have created

→Histograms and Bar charts to check out the distribution of all the driver variables

→Box plots to detect the Outliers

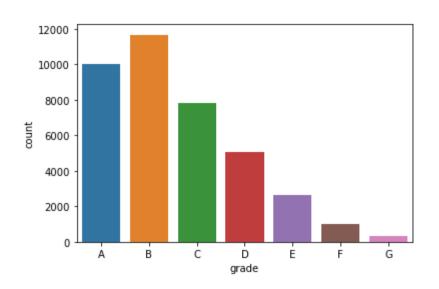→Performed the Multivariate analysis to understand how different variables interact with each other.

Loan Status Analysis

•**Observations**:

1. Most of the loans are Fully Paid.
2. About 14% of loan are having status as defaulters.
3. The loan has been increasing exponentially over the years.

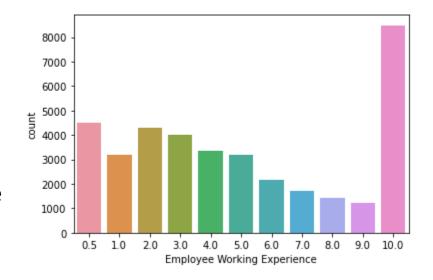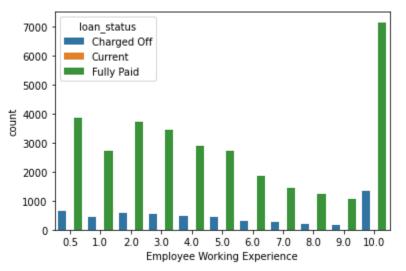No of loan granted over the years

Loan Grade Analysis

Observation:
1. Most of the loans have grade of A and B. Therefore stating most of the loans are high graded loans.

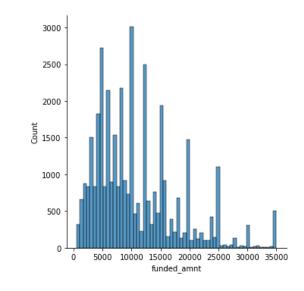# Loan Applicants work Experience Analysis

Observation:

1. Tendency of person to default the loan with 10 years of experience is also high. So company need to be careful when granting loan.

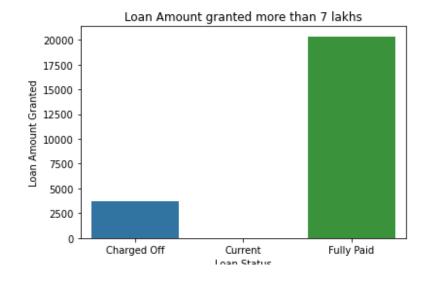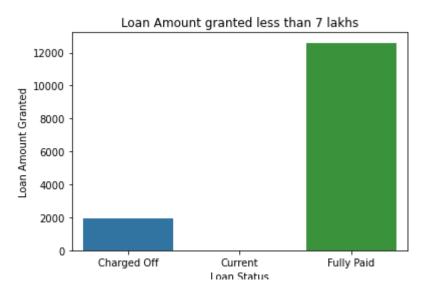2. Majority of employees applying for the loan have more than 10 years of experience
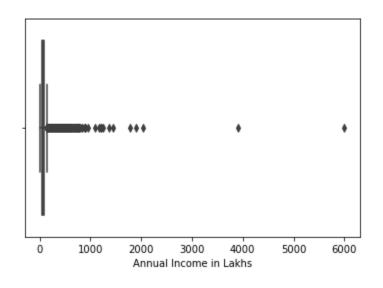
Loan Amount Analysis

Observation:
1. Funded amount is left skewed.
2. Most of the loan amount given is below 7 lakhs
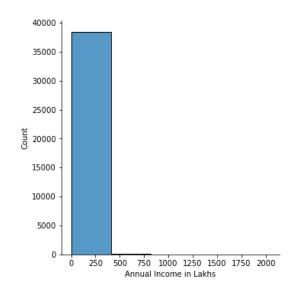3. More defaulters found in people taking loans more than 7 lakhs

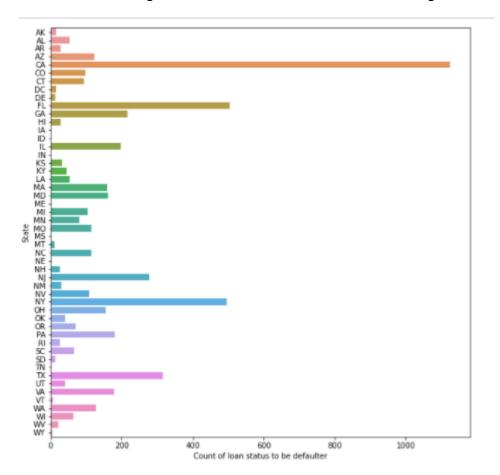# Income Analysis for the loan applicants

Observation:

1. Most of the applicants have income between 0 to 5 lakhs.
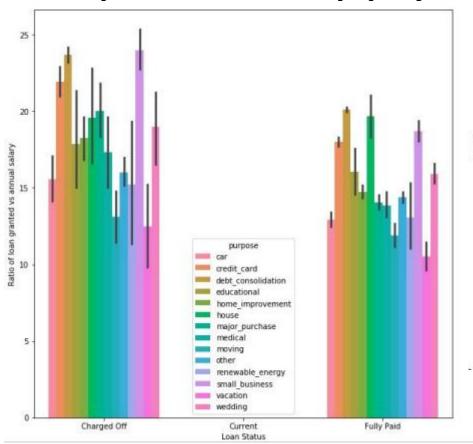2. There are two applicants having income above 30 lakhs
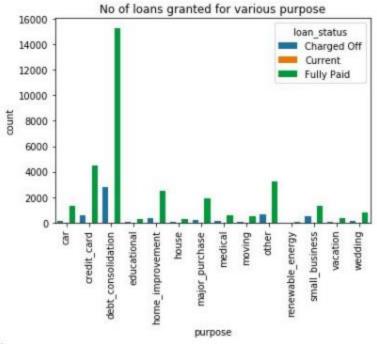
Loan Defaulters by State Analysis

Observation:

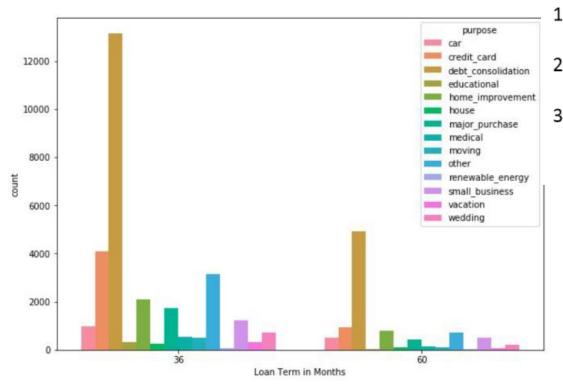Applicants from state CA have high tendency to default the loan

Purpose for applying Loan Analysis

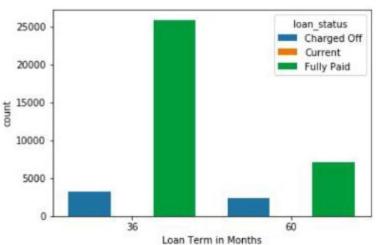

No of loans granted for various purpose

Observation:

1. Most of the loans are granted were for debt consolidation.
2. Applicants having higher income tends to default the loan.

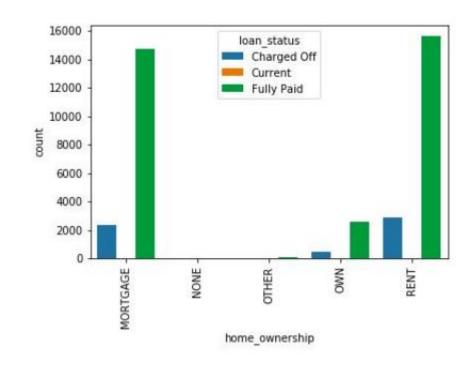# Loan Status vs Loan Tenure

Observation:

1. Most of the loans granted were of 36 months.
2. And loans granted for 36 months have slightly high tendency to default.
3. Additionally, Debt Consolidation is the most common purpose and loans are granted for 36 months and 60 months.

Loan Status by Home Ownership

Observation: Applicants having there home rented or on mortgage have almost equal tendency to default the loan.

Conclusion

Results

1. Low grade loans have high tendency to default. Grading system is working as expected.

2. Loans having higher interest rate have more defaulters. Check the background of applicant thoroughly if interest rate is high.

3. Extra scrutiny must be done for the applicants belonging to CA state, as tendency to default is high.

4. When the purpose is debt consolidation check applicant thoroughly as it has high tendency to default.