



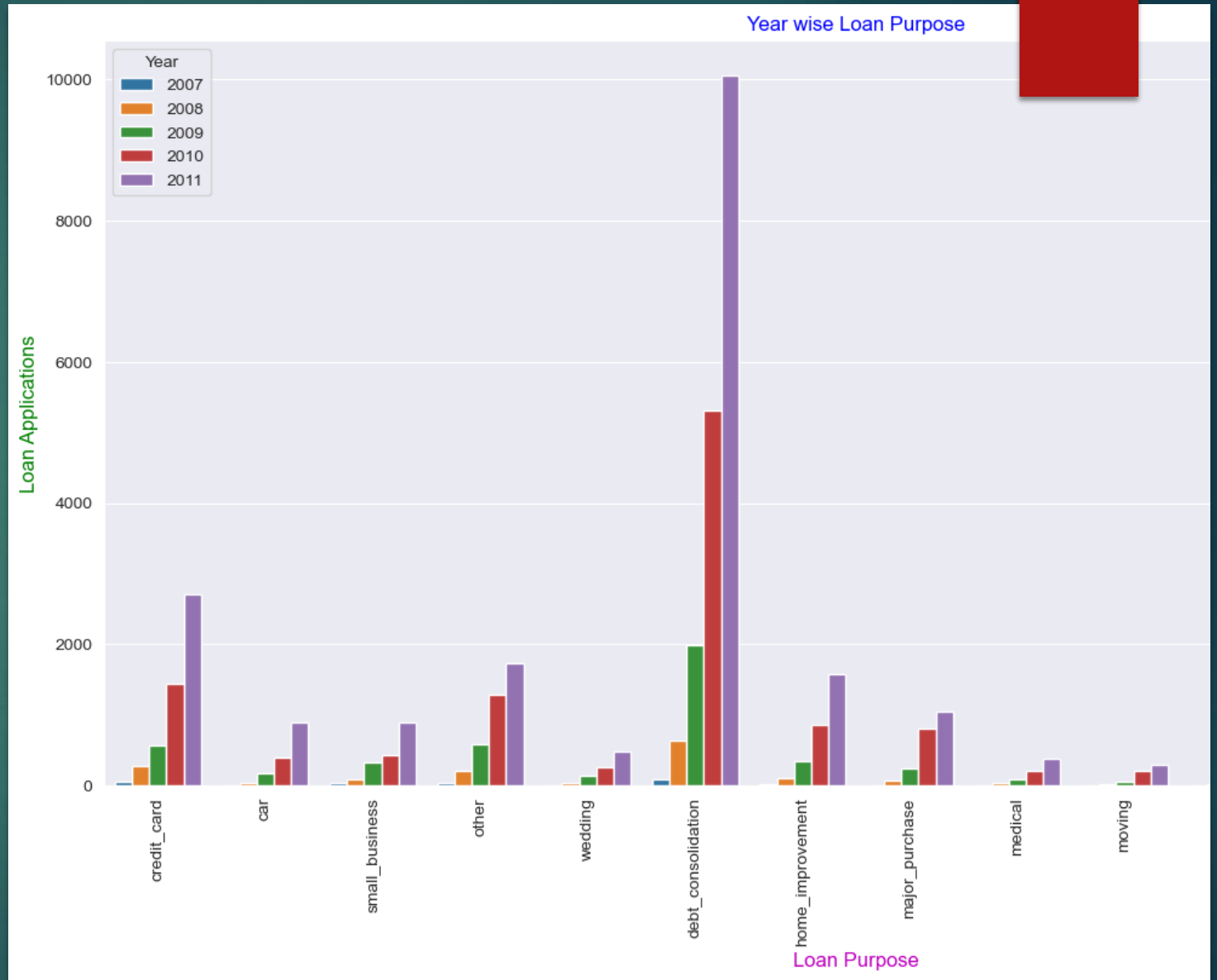
# Lending Club Case Study...

The Risk Factor Analysis

By Tirthankar Paul

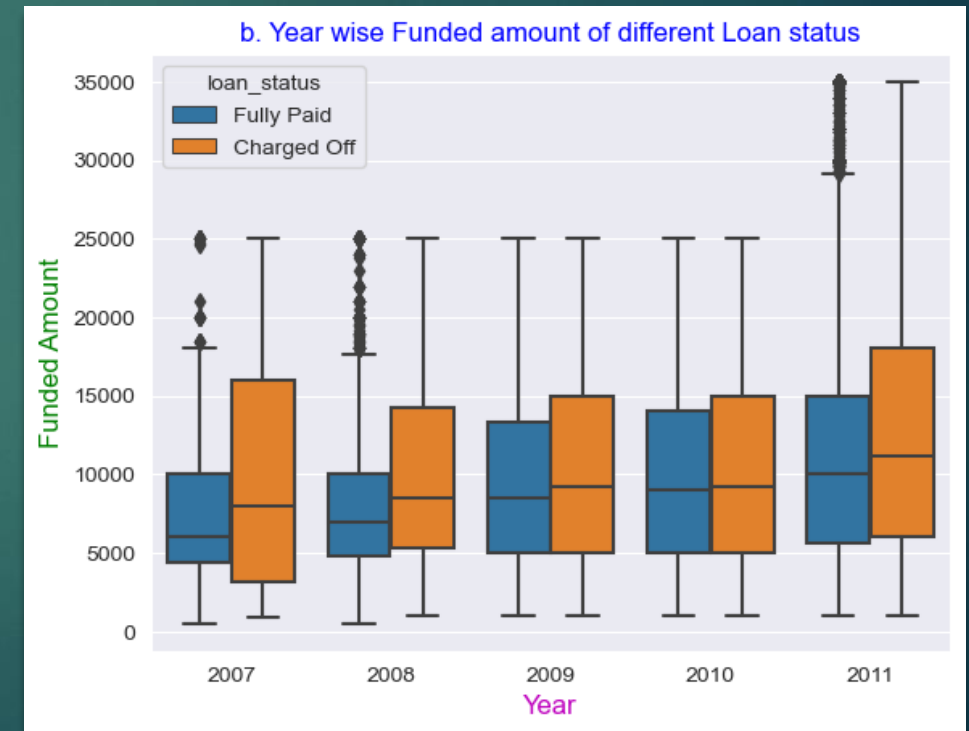
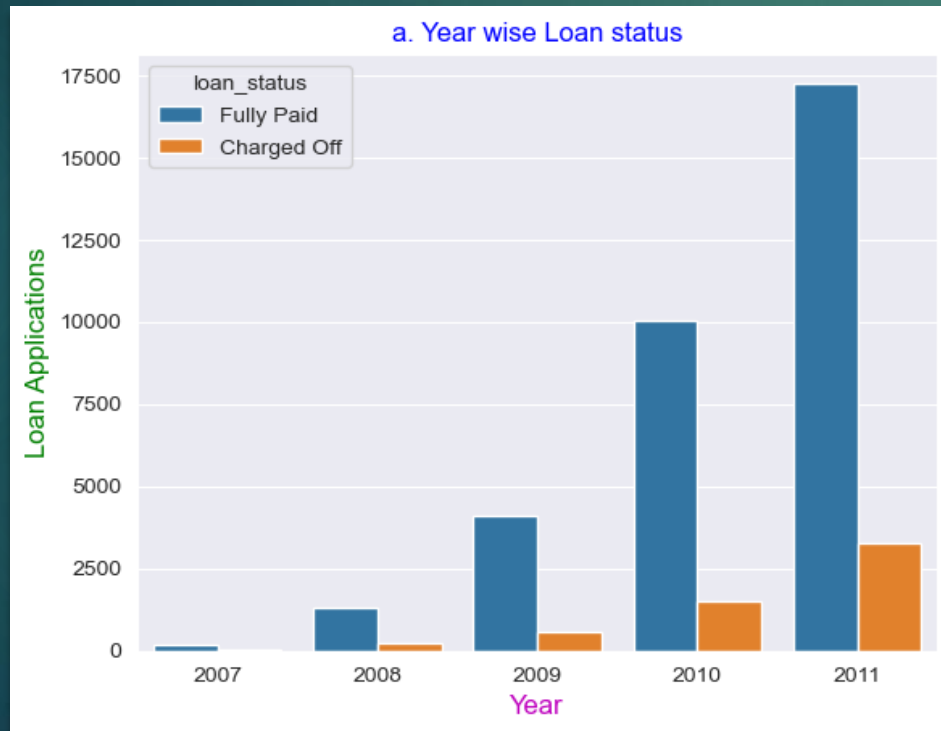
# Introduction

- ▶ Fastest growing sector.
- ▶ Instant load for various purpose, i.e. personal, medical, small business etc.
- ▶ Many loans are approving every year and the number is increasing.



# Objective

- ▶ The graph "a. Year wise Loan status" shows the increasing trend of loan application as well as the charged off loans.
- ▶ The second graph tells us comparatively higher funded amount tend to be charged off.
- ▶ In the case study, ***the main objective is to analyze the risk factor to avoid the loans get charged off.***



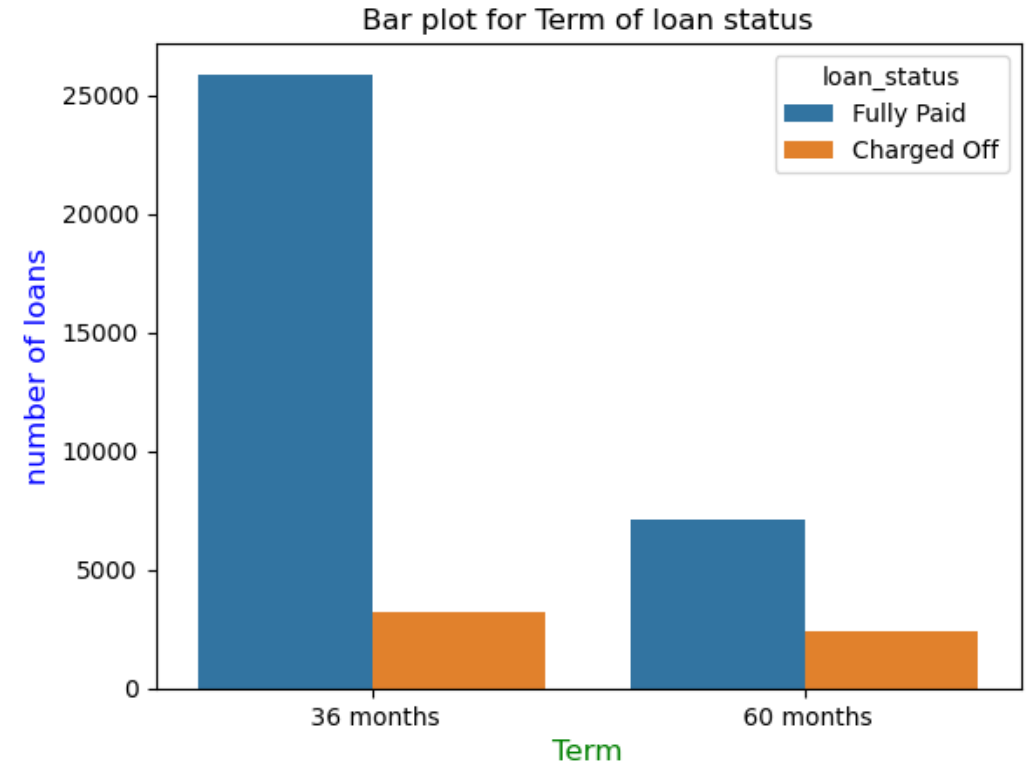
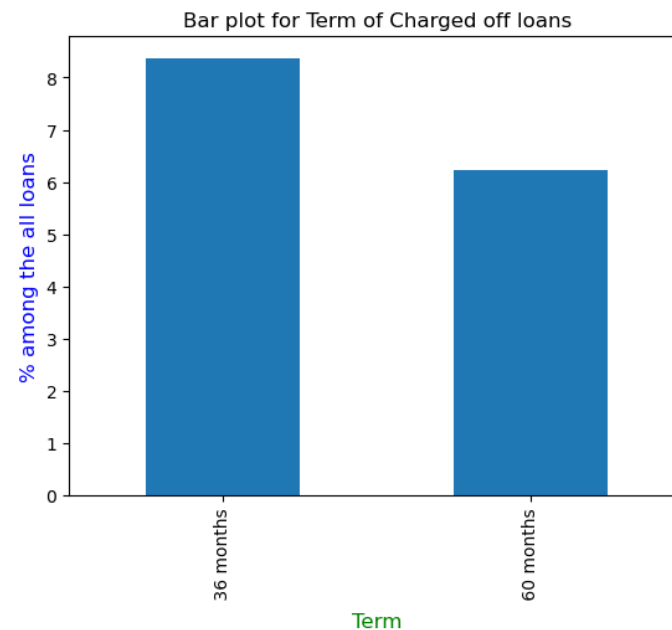
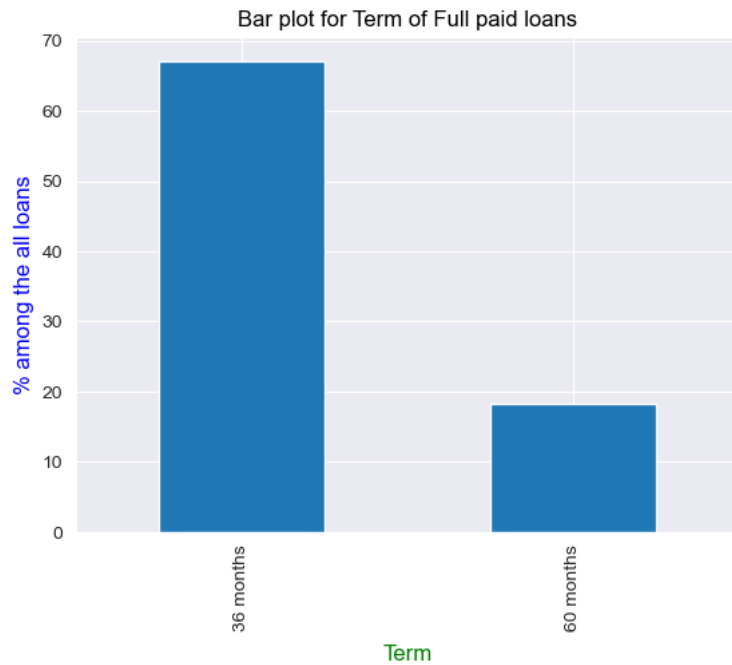
# Methodology

- ▶ Data Cleaning
- ▶ Business point
- ▶ Univariate analysis
- ▶ Segmented analysis
- ▶ Bivariate analysis
- ▶ Conclusion

# Data Cleaning

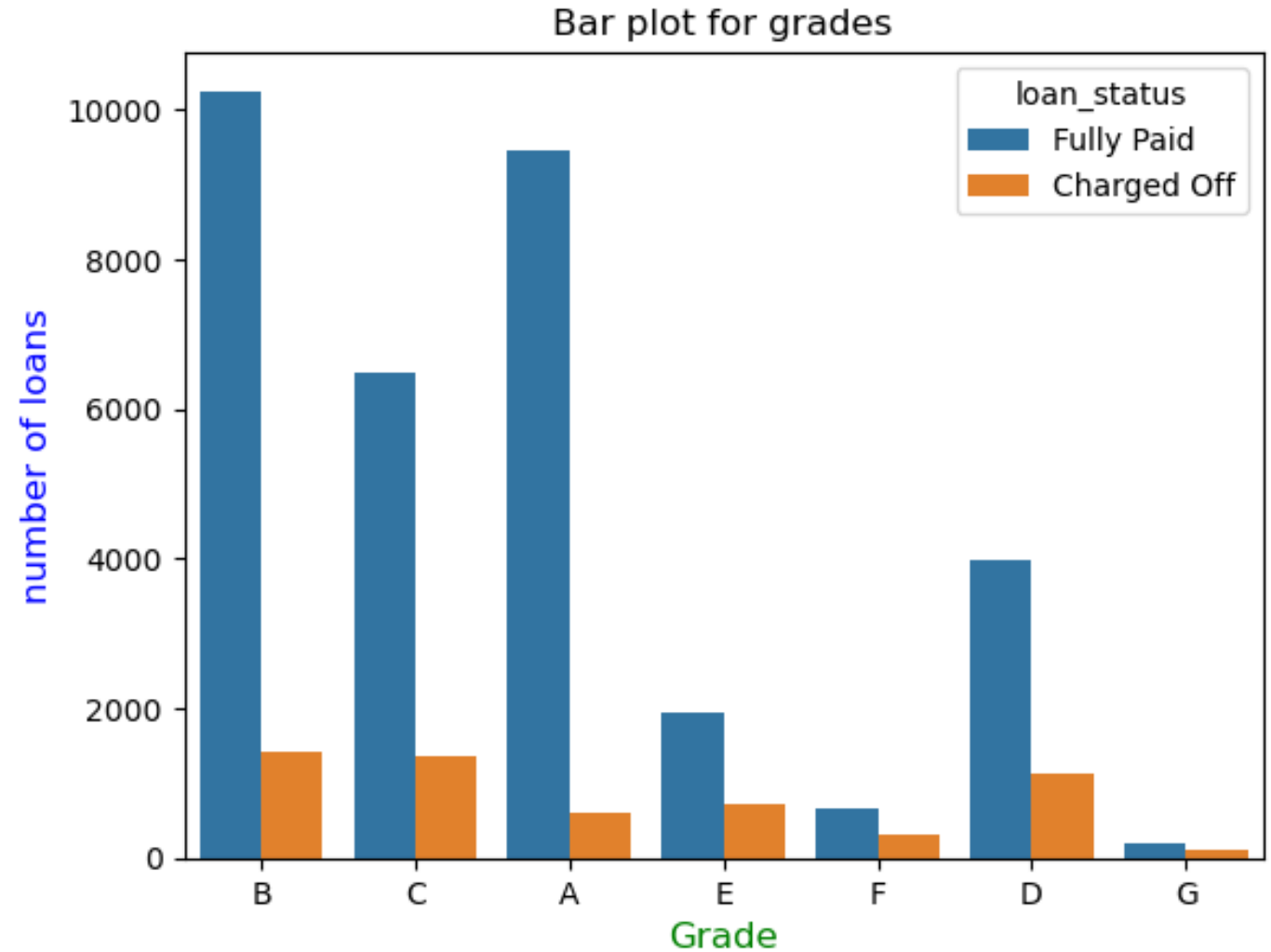
- ▶ The given data size was (39717, 111), with lots of 'NaN' and missing values.
- ▶ Deleted the column those have more than 50% of 'NaN' values. And the dataset size became **(39717,54)**.
- ▶ Later, further cleaning or missing value replacing with mean or median were done for the specific column analyzing.

# Analysis: Loan Terms among the different loan status



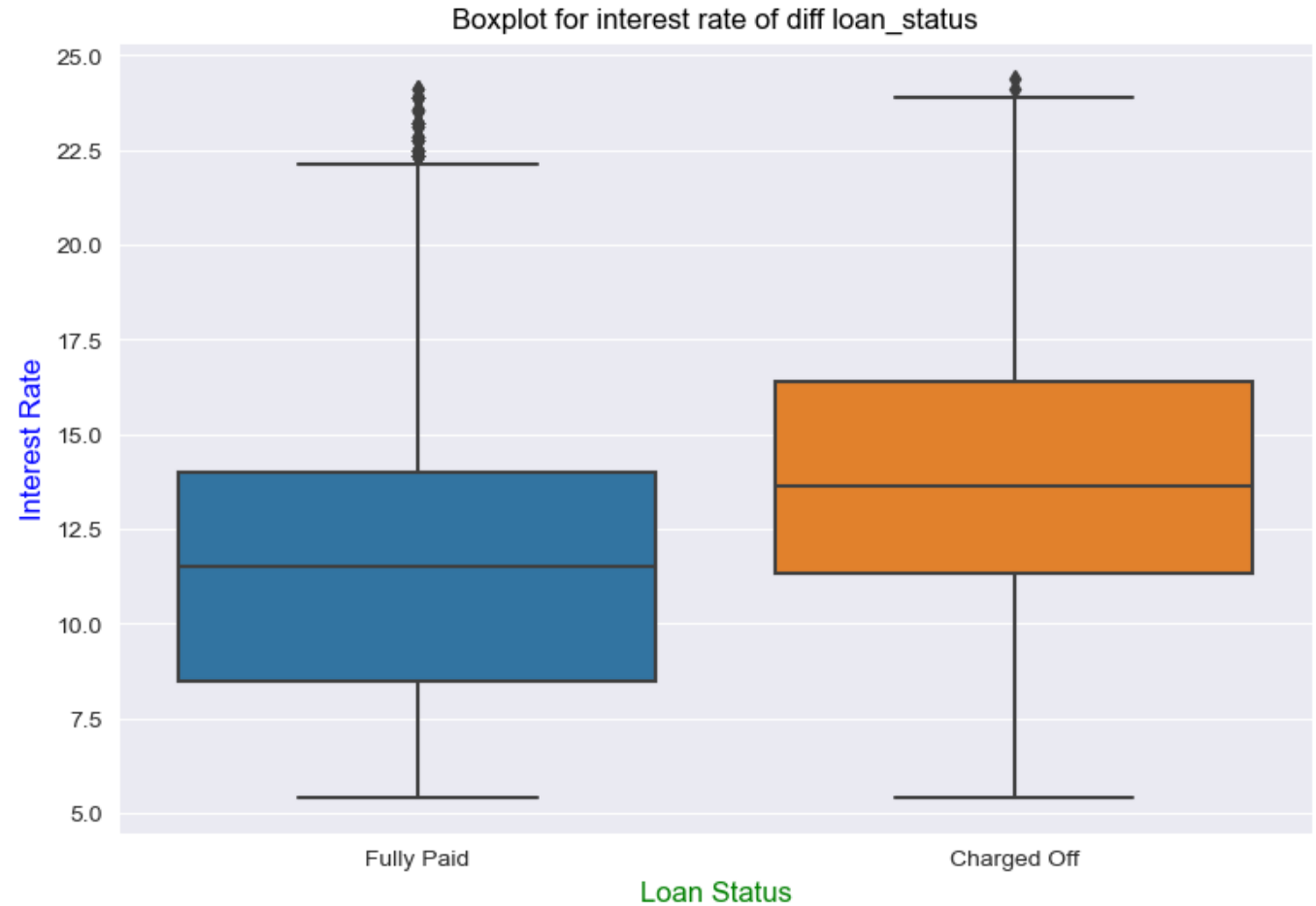
# Loan status of grades

- ▶ **Grade A and B** shows comparatively less charged off tendencies over paid loans.
- ▶ **Grade G, F and E** are comparatively risky loan applications.



# Loan status Vs Interest rate

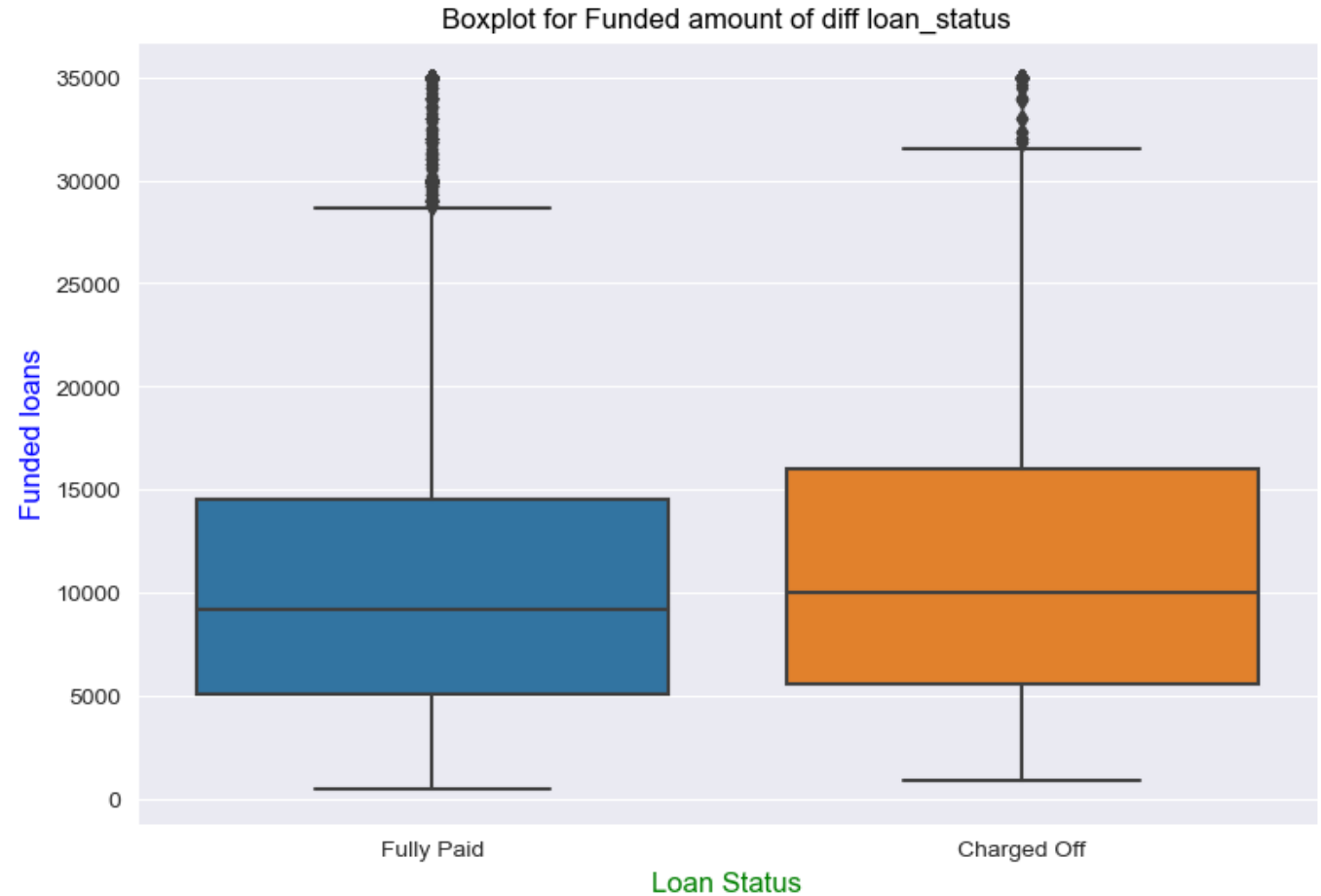
- ▶ The overall **interest rate** of the charged off loans are **higher** than the fully paid loans.
- ▶ Charged off **Q1**, **Q3** and **median** are also in **higher** position than the fully paid loans.





# Loan status Vs Funded amount

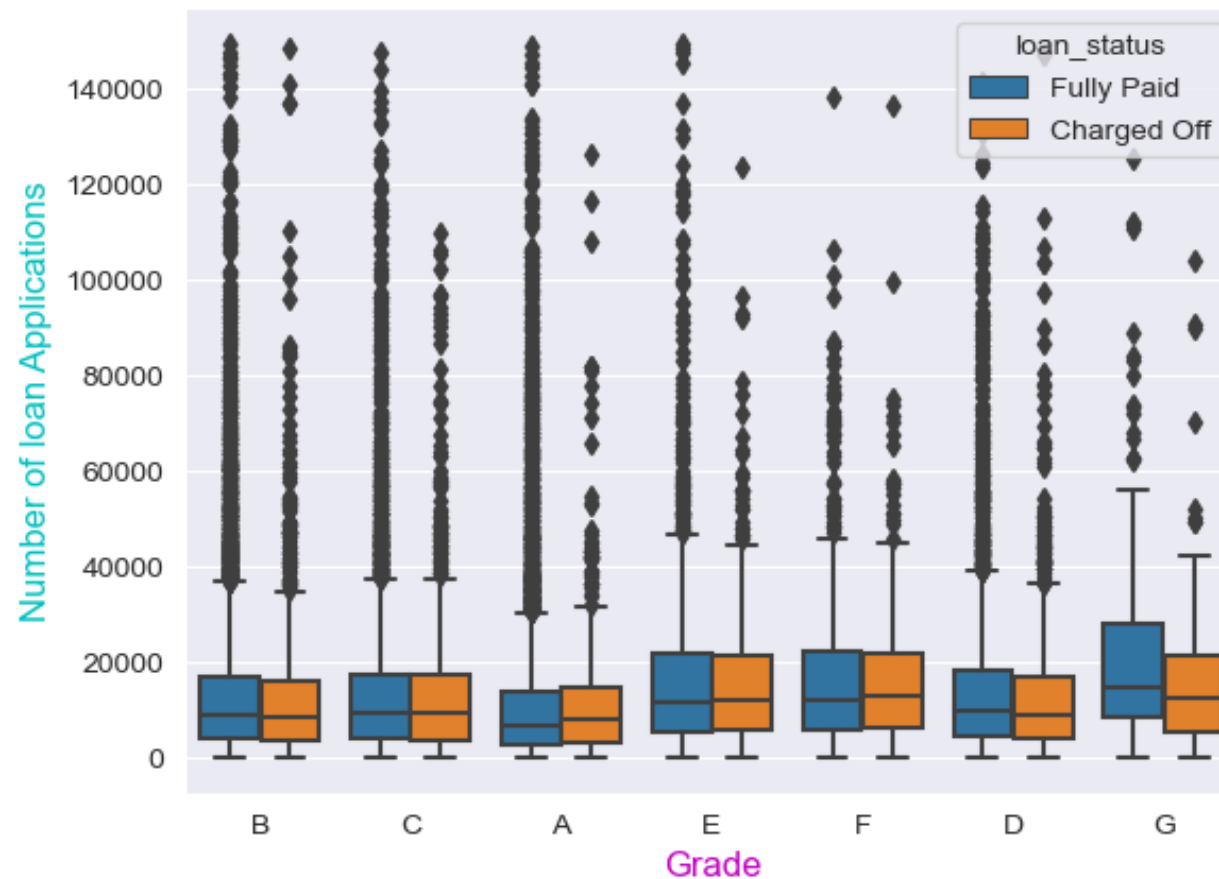
- ▶ **Third quartile** of Charged off loans is **higher** than the Fully paid loans.
- ▶ The Charged off **IQR** is **greater** than Fully paid **IQR**



# Comparison of **revol\_bal** over different **grades**.

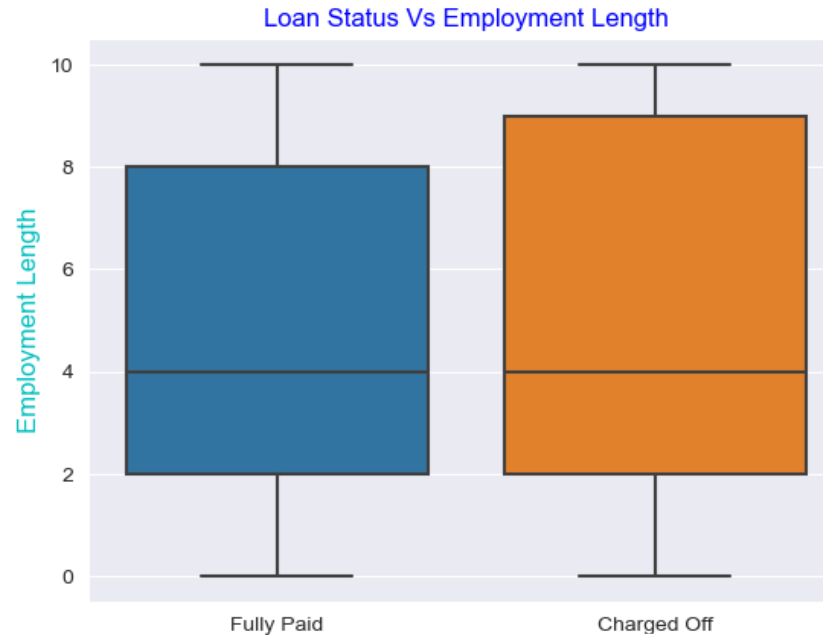
- The grade 'G' shows the significant difference on the charged off and fully paid loans.

Comparison of revol\_bal over different grades among the different loan status

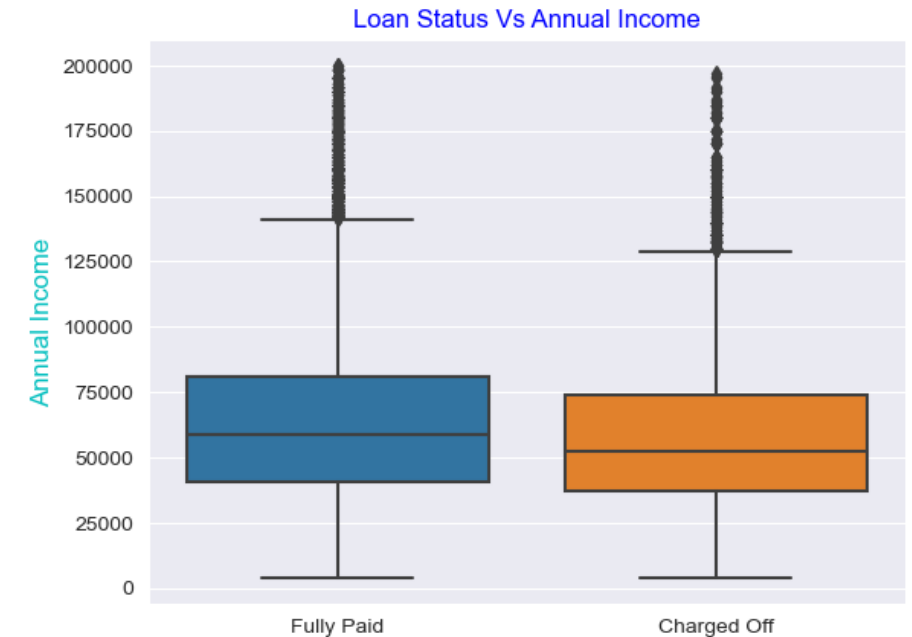


# Loan Status Vs Annual Income & Employment Length

- ▶ Higher **employment length** trends to more defaulter.
- ▶ Less **annual income** also a chance of defaulter.



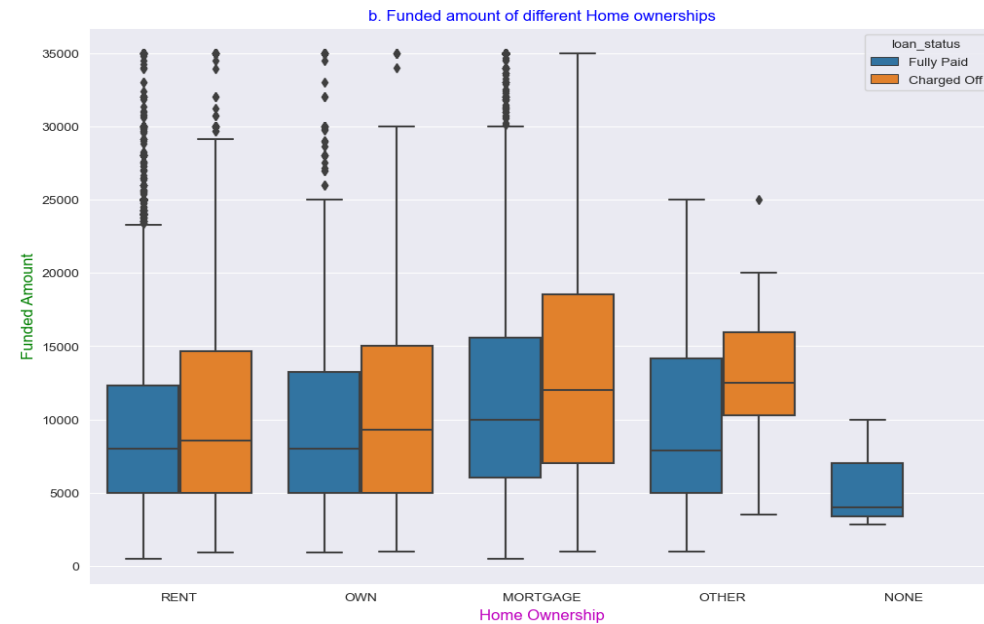
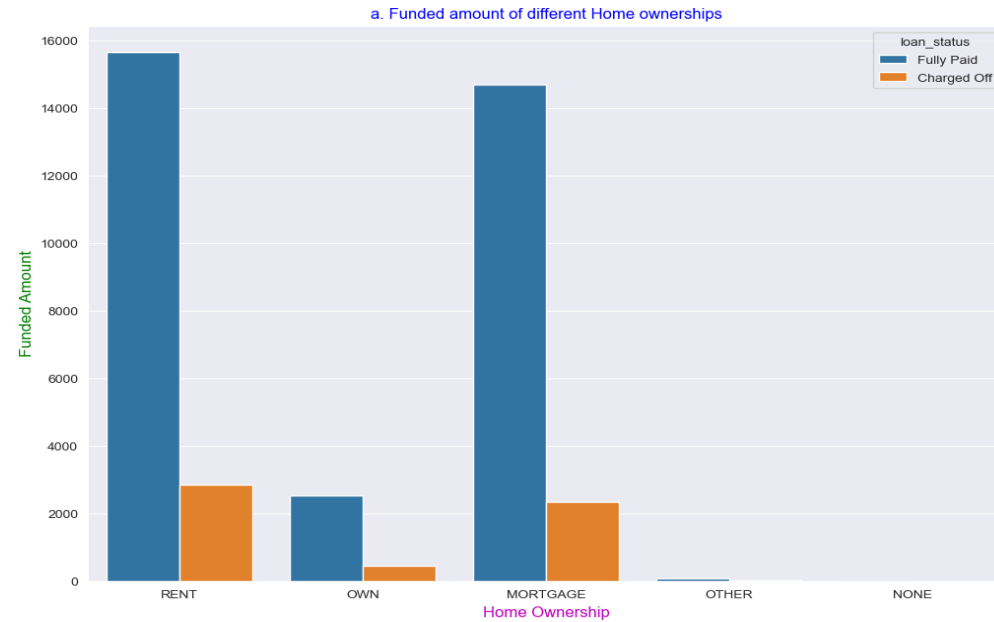
Loan Status



Loan Status

# Home Ownership

- ▶ **Home ownership** with rent and **mortgage** have high defaulter.



# Conclusion

- ▶ In the study the data were analyzed for the fully paid and charged off loan applications.
- ▶ There are many aspects which are prominent factor for charged off loans. These are **home ownership, annual income, employment length, revol balance** and **grades**.
- ▶ The **higher amount** of loans with **higher interest rate** are leading towards the defaulted application.