LENDING CLUB
CASE STUDY

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Objectives

- To make a decision for **loan approval** based on the applicant's profile, when the company receives a loan application,
- Identify **risky loan applicants**.
- Identification of such applicants using **EDA**.
- To understand the **driving factors** (or driver variables) behind loan default, i.e. the variables which are strong indicators of default.

Problem Solving Methodology

Data Understanding → Data Cleaning → Univariate and Segmented Univariate Analysis → Bivariate Analysis

Univariate and Segmented Univariate Analysis

- Approximately **14% of loans** in the dataset are defaulted.
- Lending Club only **recovers 57% of the loan amount** when loans are defaulted. On **fully paid** up loans, the company makes **17% profit.**
- The **% of charged off loans increases** substantially as we go up the **loan amount buckets**. The higher loans, though lesser in number, carry a substantially higher risk of default.
- The **higher term loans** have a higher chance of default.
- **26% of loans for small business** are Charged Off. ,making them the most risky purpose.
- The percentage of Charged Off loans is markedly higher when the **borrower has a prior record of bankruptcy**.

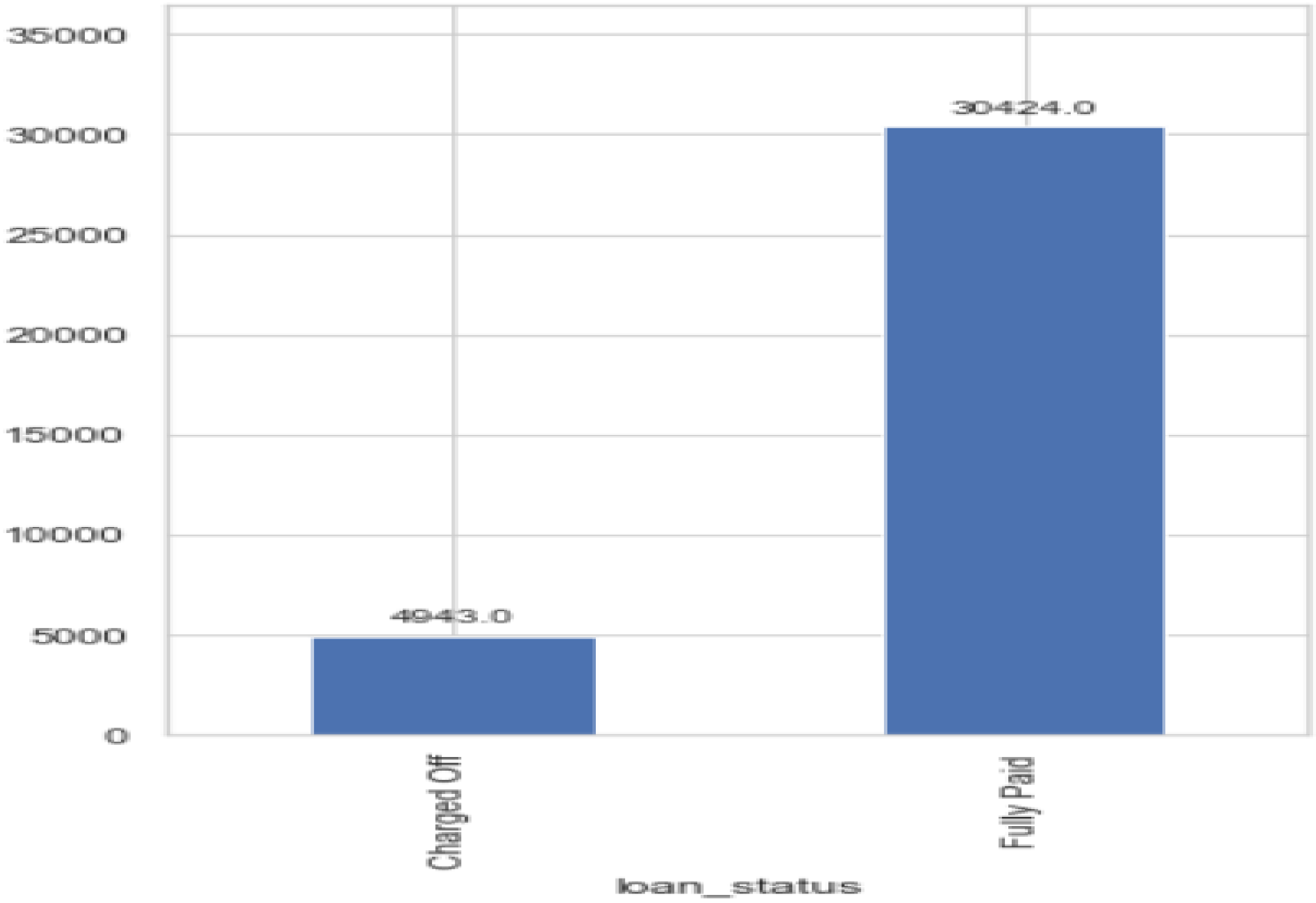
Univariate and Segmented Univariate Analysis

- Percentage of **charged off increases** by **increase in interest rates**.
- There is **no impact of employment length** to chance of loan default.
- **Loan defaults** are higher for **lower income,** and progressively reduce as incomes go up.
- **Higher the dti** higher the chances of loan being Charged Off.
- Loan amounts of **30% of annual income or higher** see a high rate of default.

Bivariate Analysis

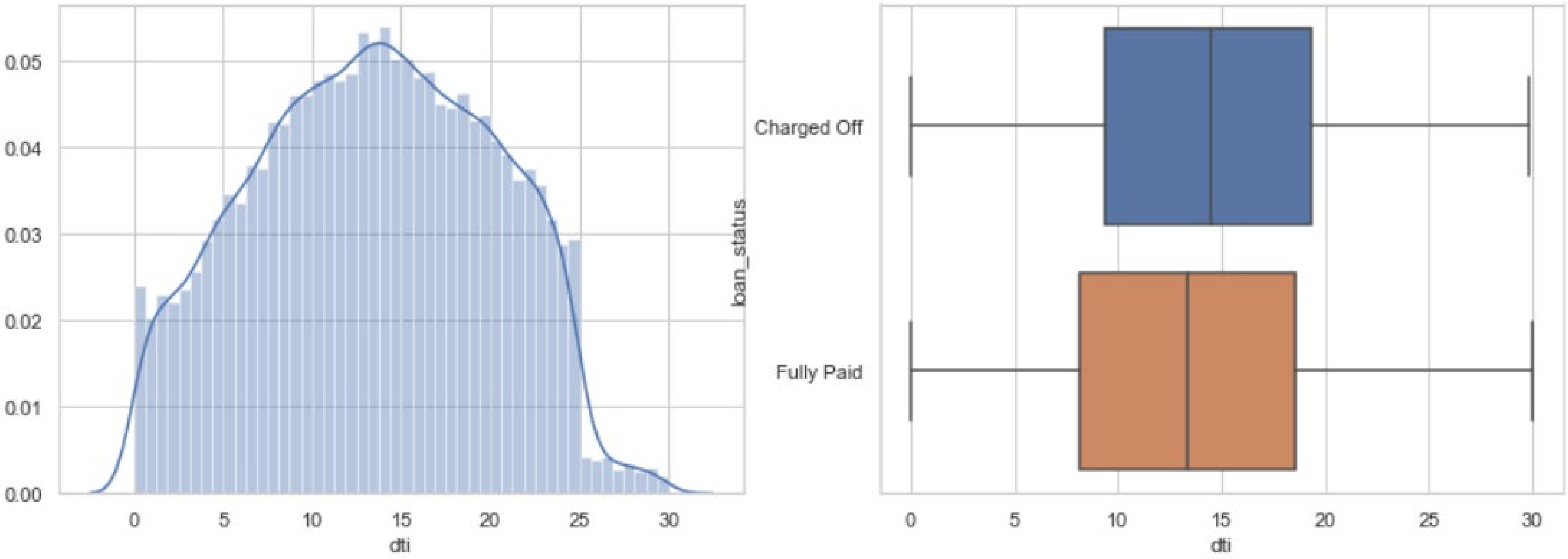
- There are people with **average income lower than 50000 taking loans of 25000 or higher**.
- **Larger loans generally appear to be given a lower grade**, with the median loan amount for a grade G loan being almost 10000 higher than that of a grade A, B, or C loan.
- Loans at a **higher interest rate** are more likely to be Charged Off.
- **Higher loan amount** is being approved to **riskier borrowers**.
- **Interest rate offered increases** with the **number of delinquency of the borrower.**

Loan Status



35000
30000
25000
20000
15000
10000
5000
0
30424.0
4943.0
Charged Off
Fully Paid
loan_status

Loan Status vs dti



Conclusions

- Approval of loans can be stopped where **amount/income is higher than 30%.**
- Number of approvals can be reduced where purpose is **small business**.
- Approval of **high-value loans can be stopped** when **revolving line utilization rate greater than 75%.**
- Approval of loans can be stopped to people with **prior bad record or at least approval of high-value loans**..
- Charging can be implemented **higher interest rates** for loans with **dti greater than 20**.