

Lending Club Case Study

Submitted by:

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Background - Lending Club Case Study

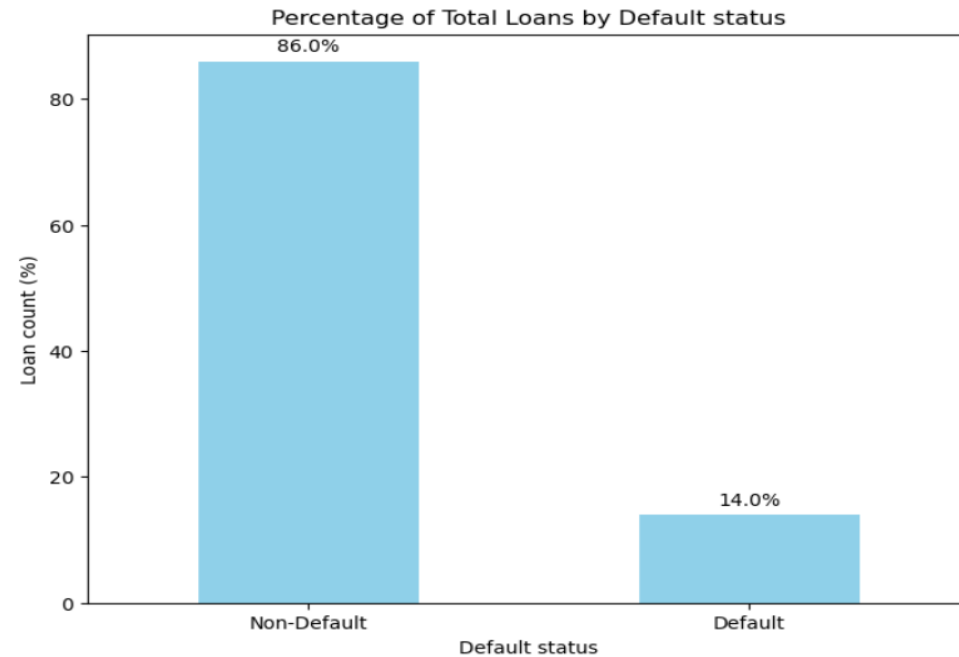
Lending Club is the largest online loan marketplace, facilitating personal loans, business loans, and financing of medical procedures. Borrowers can easily access lower interest rate loans through a fast online interface.

The data given contains information about past loan applicants and whether they 'defaulted' or not.

Business Objective:

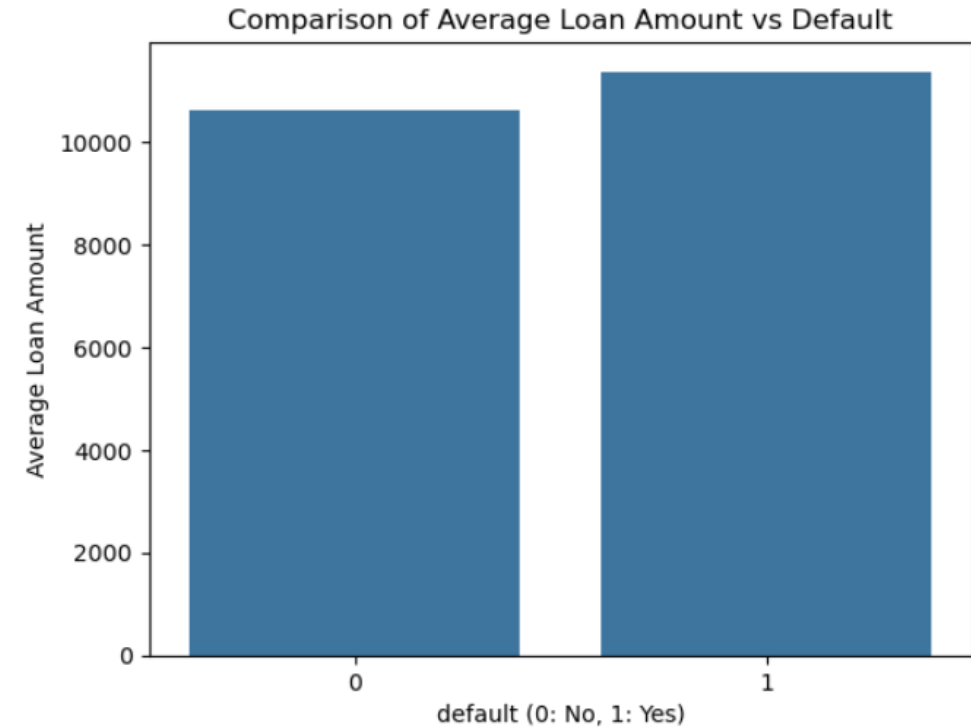
The aim is to identify driving factors (driver variables) which indicate if a person is likely to default, which may be used for taking actions such as denying the loan, reducing the amount of loan, lending (to risky applicants) at a higher interest rate, etc.

Percentage of Total Loans Defaulted and Average Loan Amount



Summary:

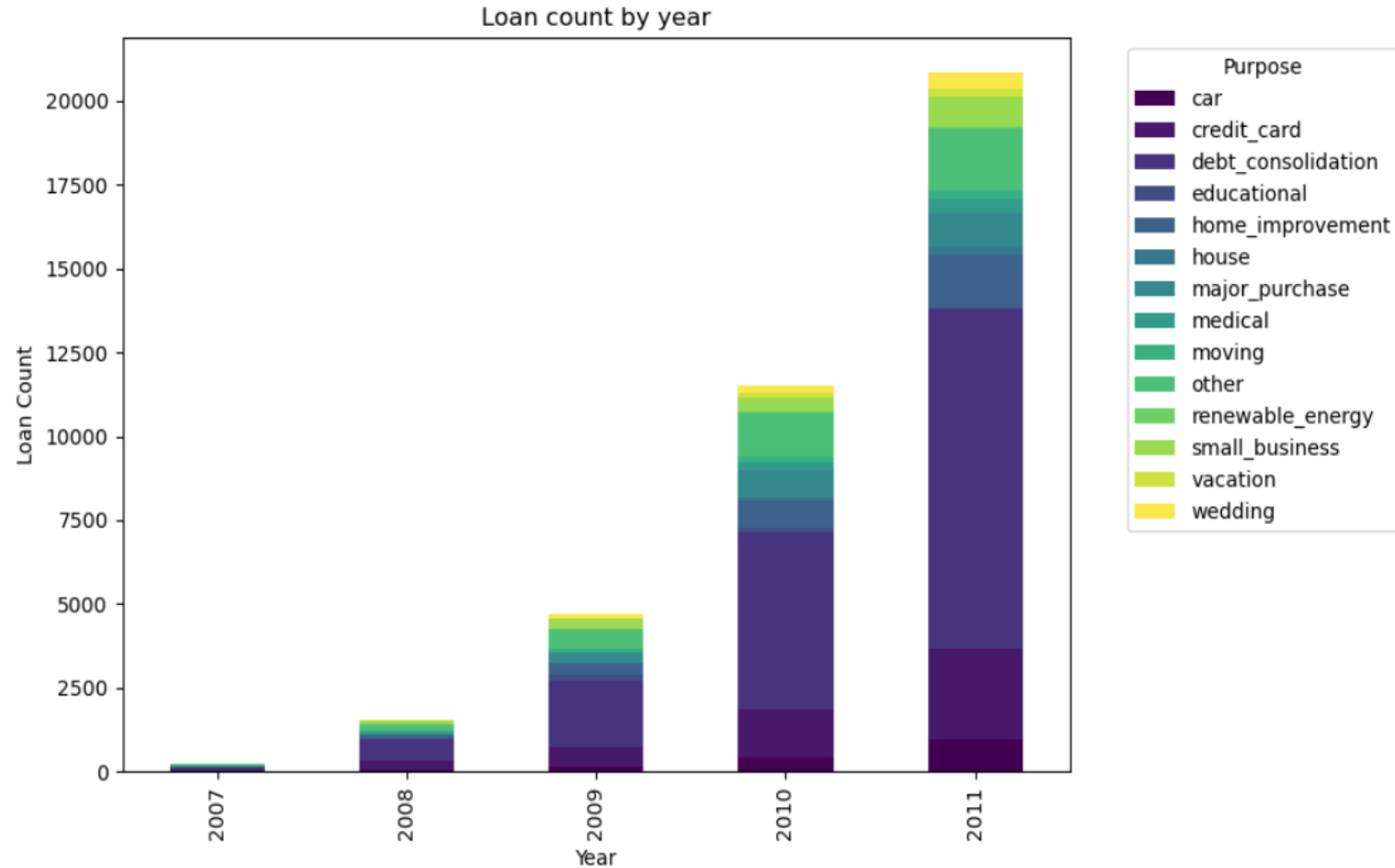
- 14% of the total loans are defaulted



Summary:

- Average loan Amount is higher for defaulted loans

Distribution of Loans over years



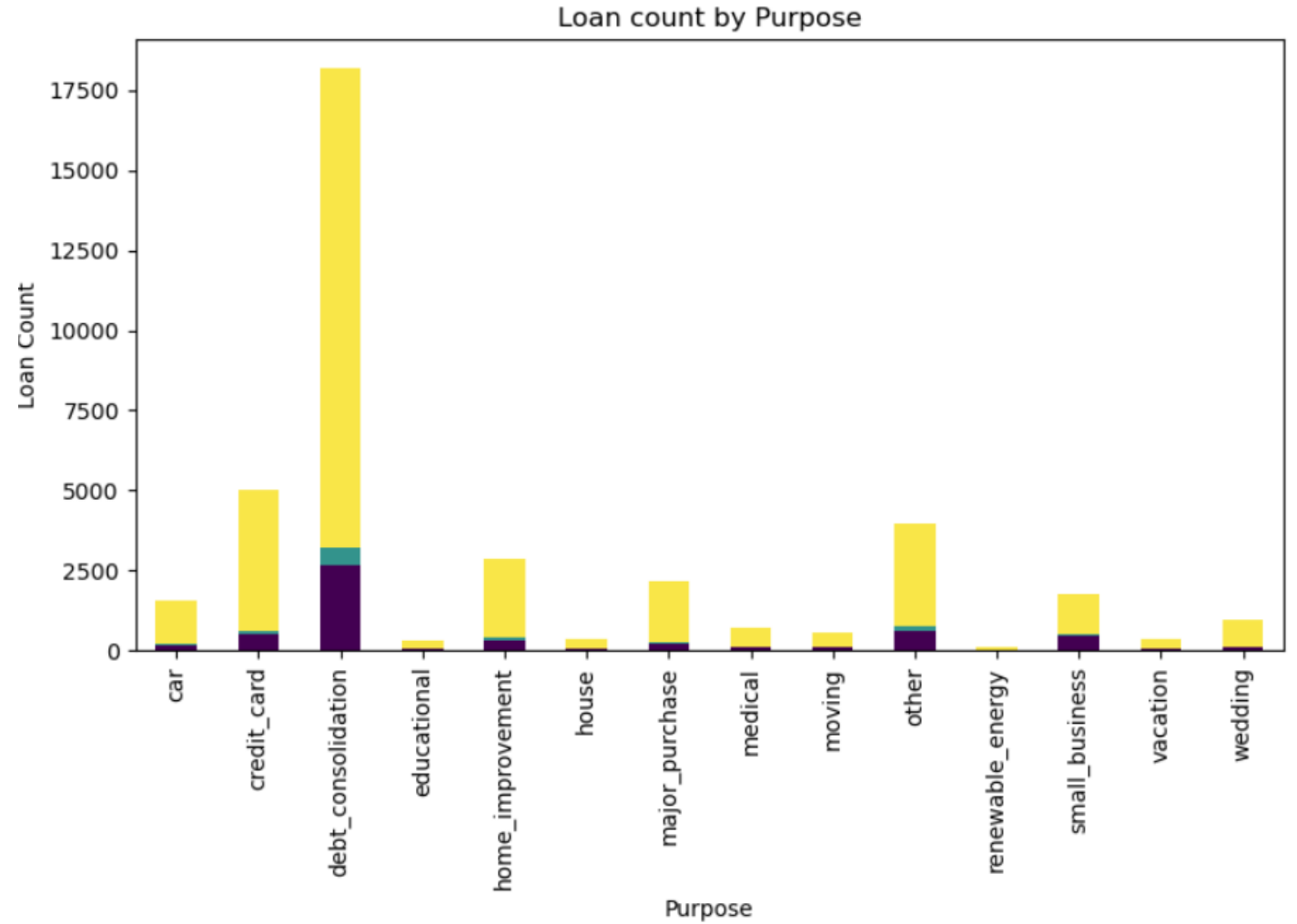
Summary:

- Number of Loans have increased significantly year over year.
- Debt consolidation loans have increased year over year and highest in 2011. Credit card loans have also increased in 2011

Distribution of Loans by purpose

Summary:

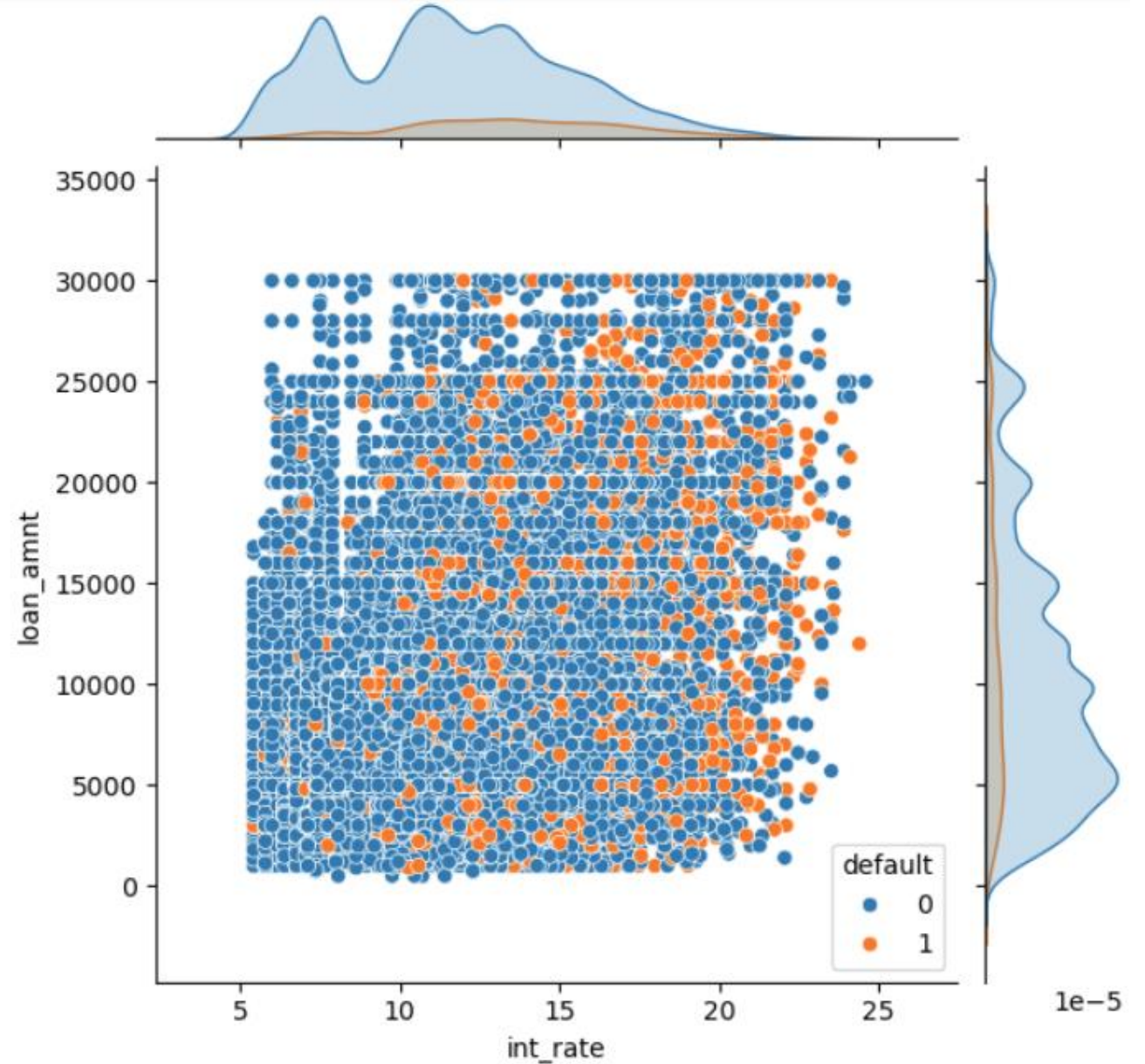
- Highest number of loans are for Debt Consolidation



Interest rate vs loan amount vs default status

Summary:

- Both interest rate and Loan amount are right skewed i.e lower limits are much lower than the rest
- Defaults are high above 10% interest rate

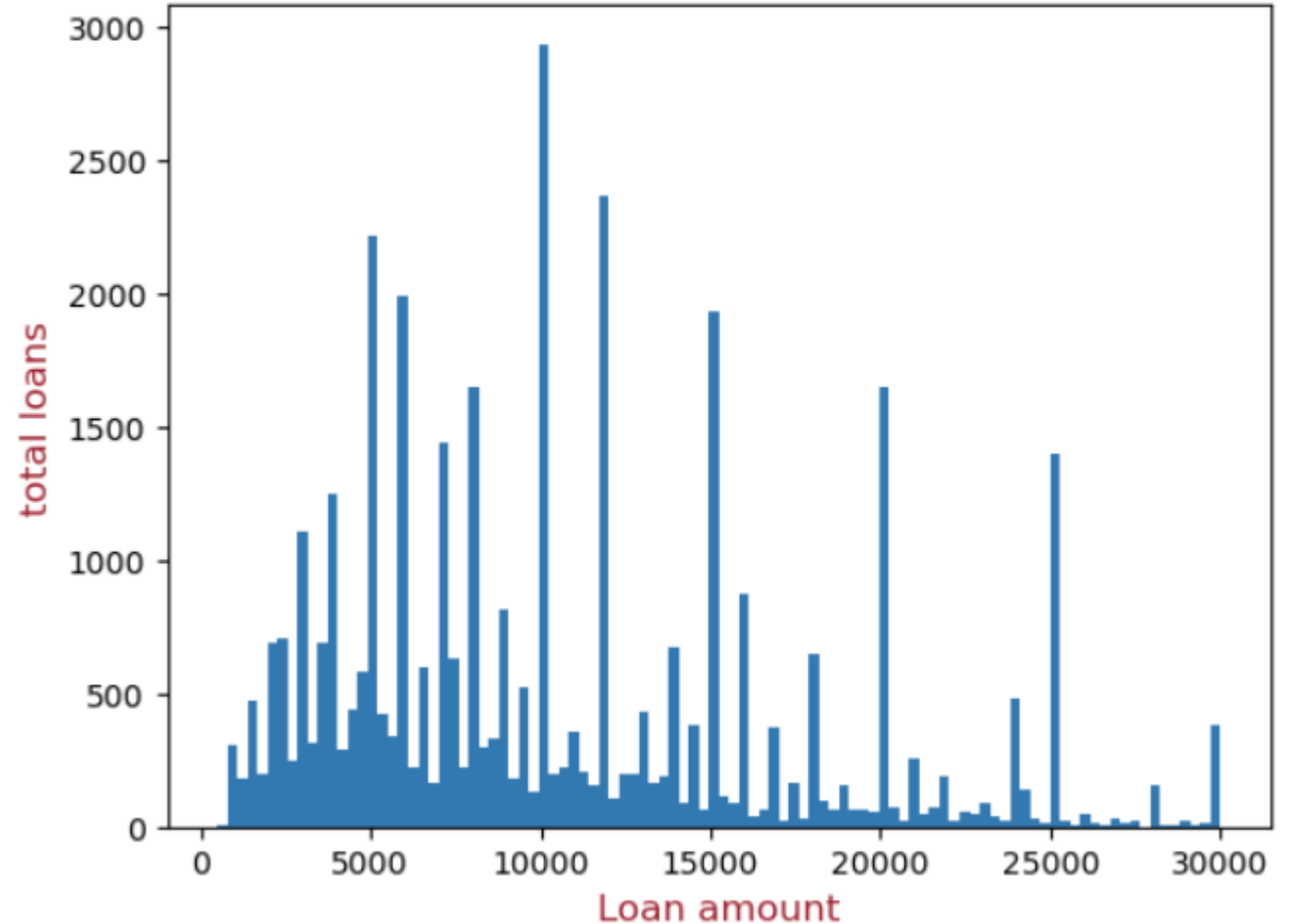


Frequency of Loans by Loan Amount

Frequency Plot: Loan amount for all loans

Summary:

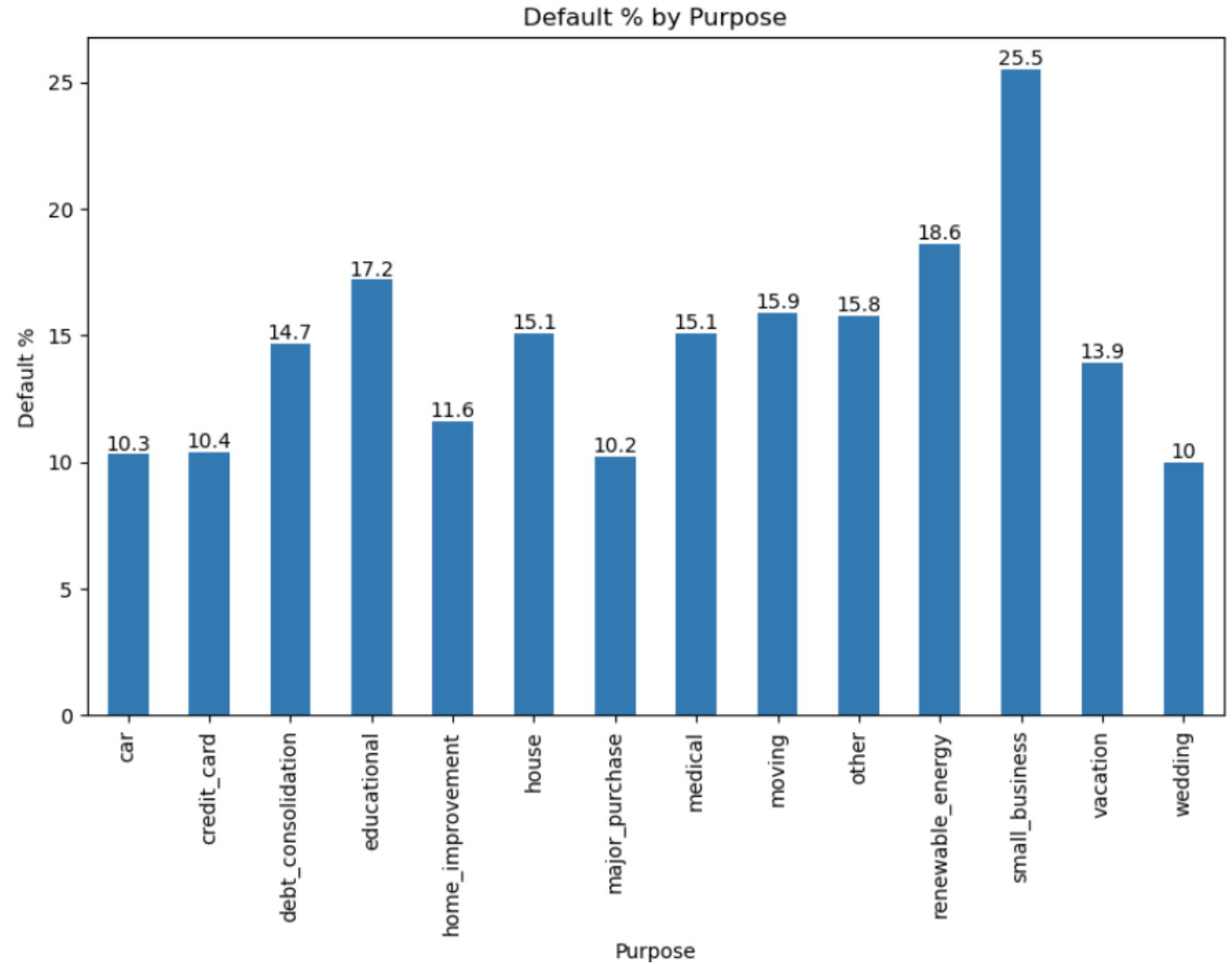
- Highest numbers of loans are near Loan Amount 10000
- Majority of the loans are below Loan Amount 15000



Distribution of Loans by purpose

Summary:

- Small business has highest percentage of defaults
- Renewable energy has the second highest default rate
- Educational has the third highest default rate

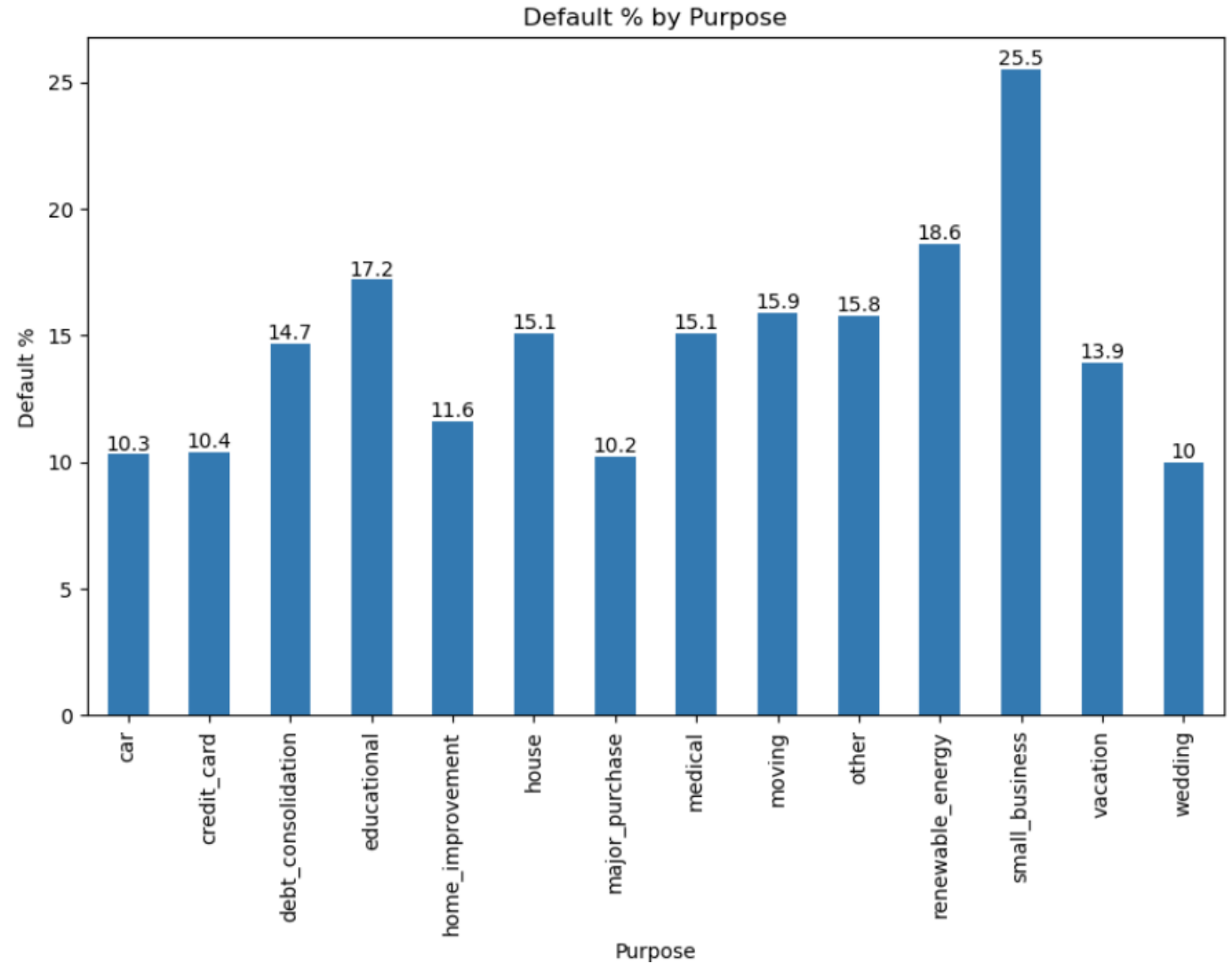


Key variables - likely to influence
loan default

Driving Factor 1: Purpose

Summary:

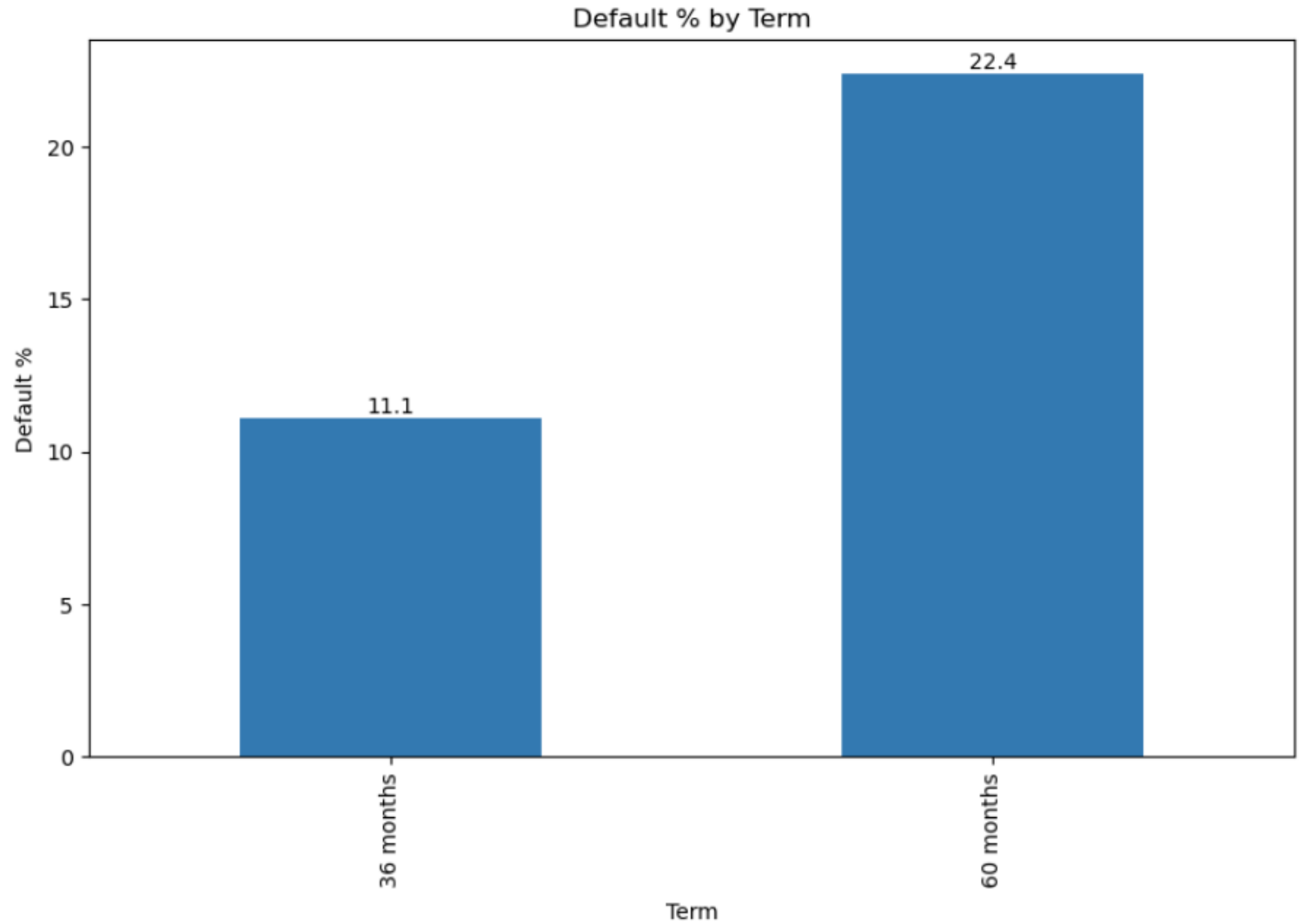
- Small business has highest percentage of defaults
- Renewable energy has the second highest default rate
- Educational has the third highest default rate



Driving Factor 2: Term

Summary:

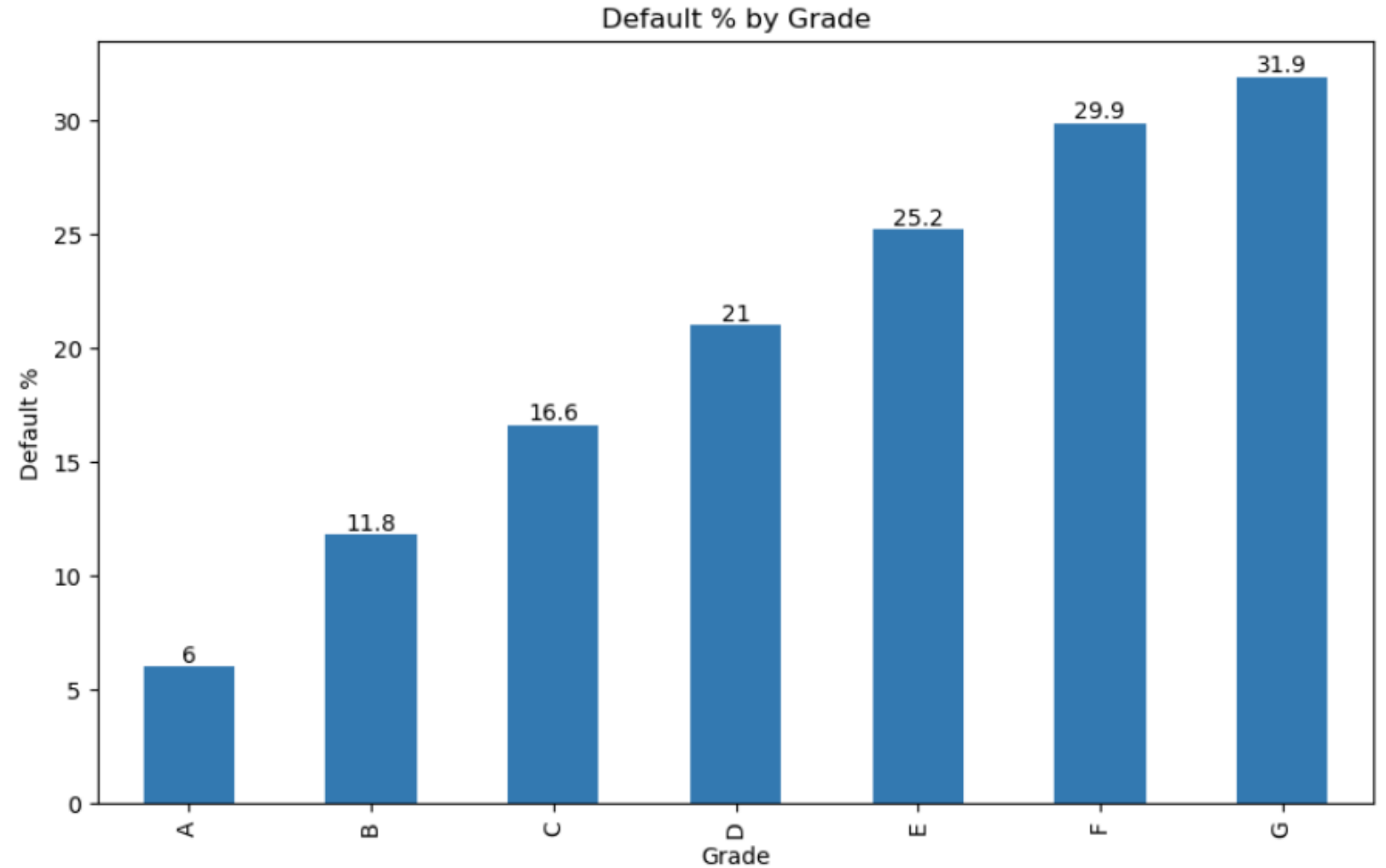
- Highest default rate is for 60 months Term



Driving Factor 3: Grade

Summary:

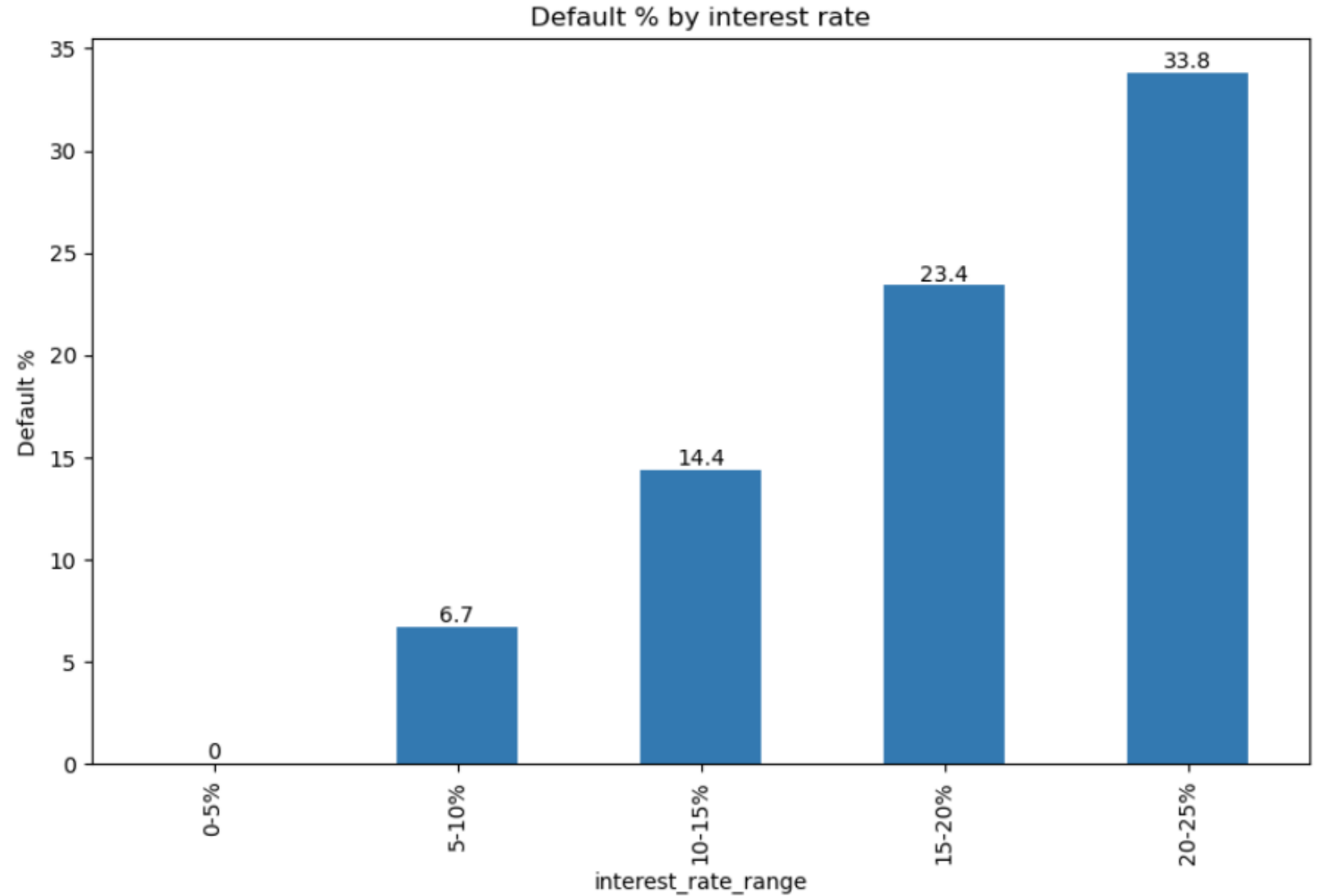
- Highest default rate is for Grade G
- Default % is increasing with increase in Grade



Driving Factor 4: Interest Rate

Summary:

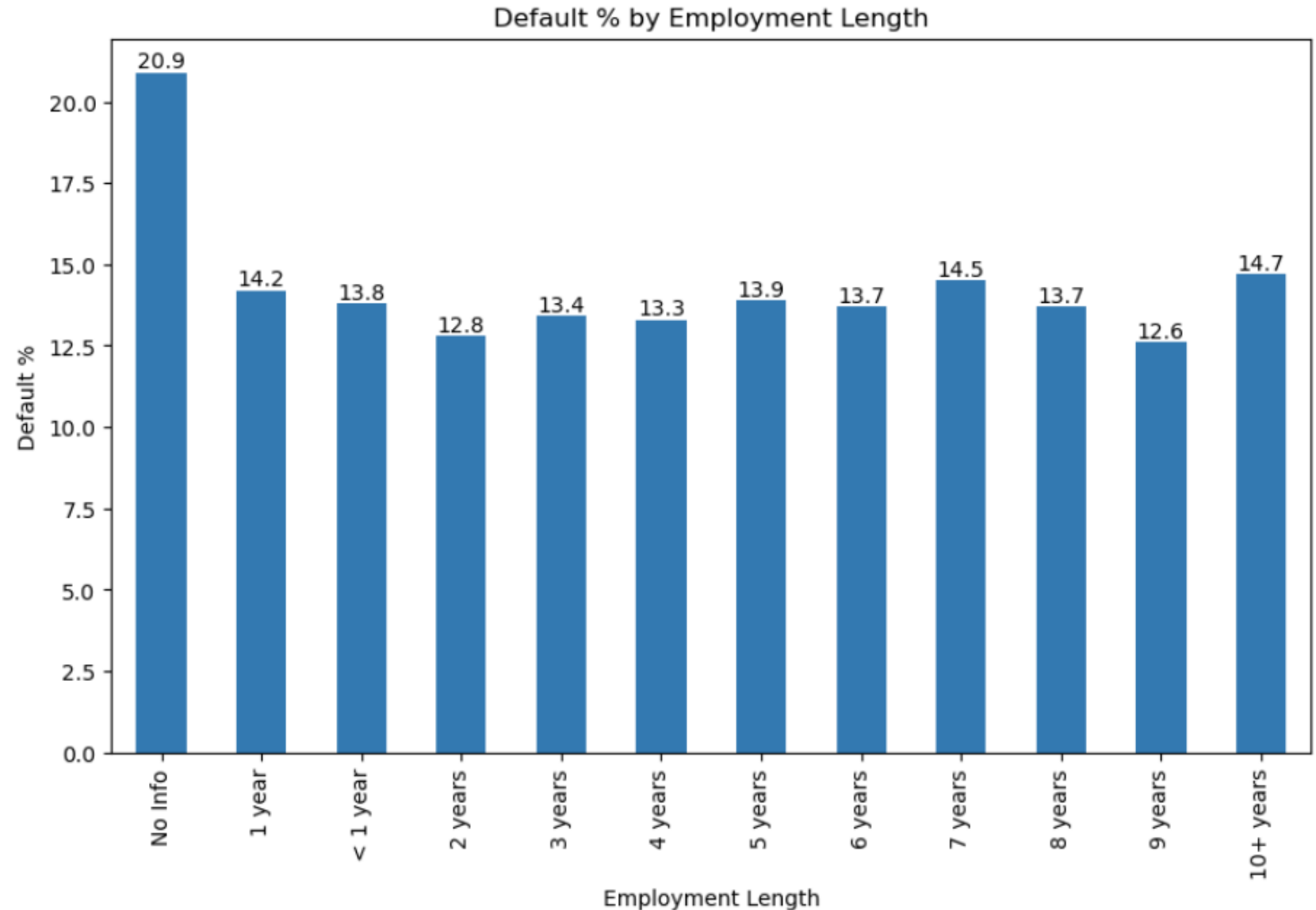
- Highest default rate is for interest rate range 20%-25%
- Default % is increasing with interest rate



Driving Factor 5: Employment Length

Summary:

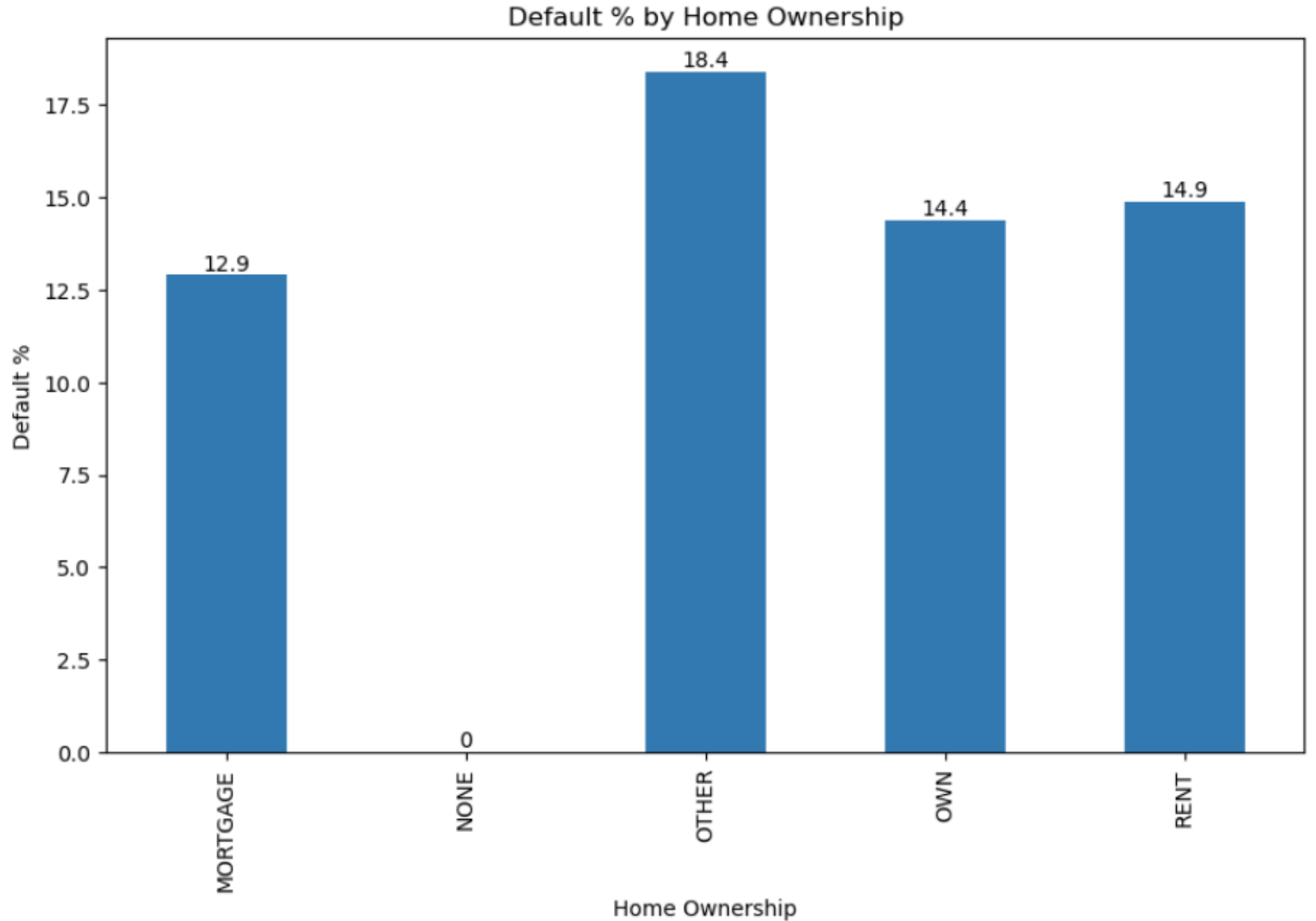
- Highest number of defaulted loans percentage are for Employment Length not available (No Info)



Driving Factor 6: Home Ownership

Summary:

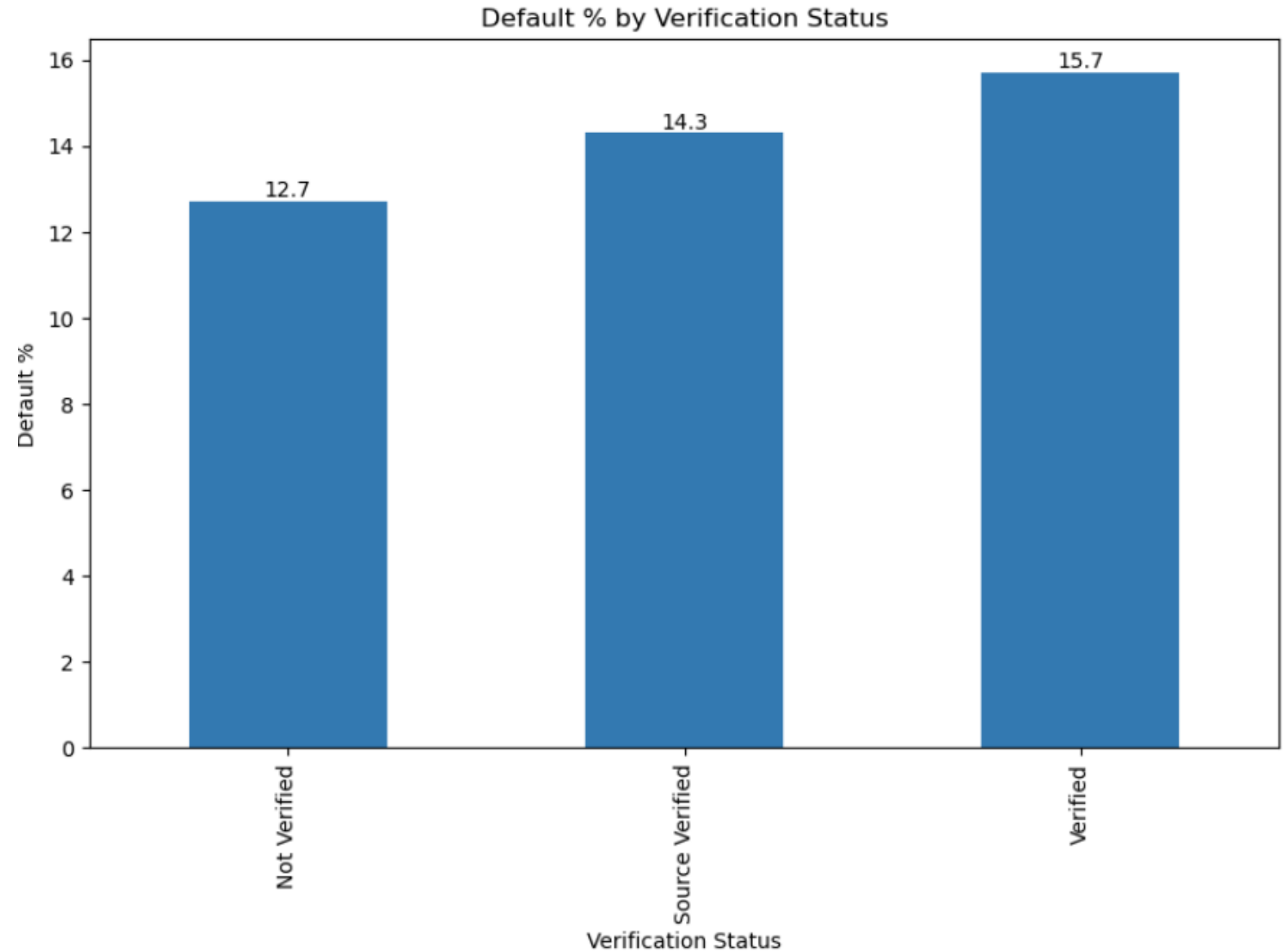
- Highest number of defaulted loans percentage are for “other” Home ownership



Driving Factor 7: Verification Status

Summary:

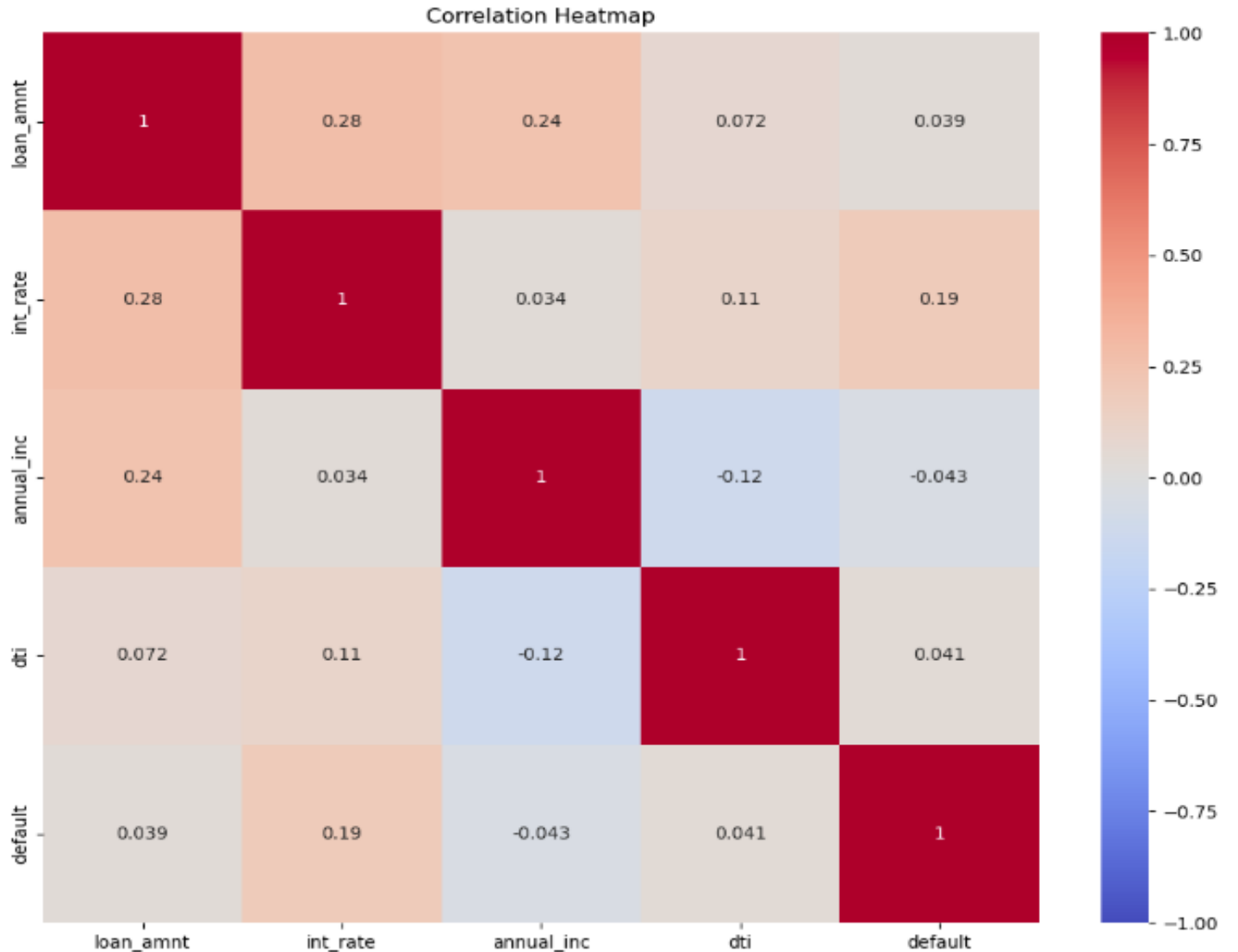
- Highest number of defaulted loans percentage are for “Verified” status



Correlation Heat Map (Loan Amount, Interest Rate, Annual Income, dti, default)

Summary:

- Interest rate and loan amount shows positive correlation
- Interest rate and default shows positive correlation
- Interest rate and dti shows positive correlation
- Annual income and loan amount shows positive correlation.



Key Insights

Top 5 Driving Factors (driver variables) which indicate if a person is likely to default are:

1. Purpose:

- Small business has highest percentage of defaults
- Renewable energy has the second highest default rate
- Educational has the third highest default rate

2. Term:

- Highest default rate is for 60 months Term

3. Grade:

- Highest default rate is for Grade G
- Default % is increasing with increase in Grade

4. Interest Rate

- Highest default rate is for interest rate range 20%-25%
- Default % is increasing with interest rate

5. Employment Length

- Highest number of defaulted loans percentage are for Employment Length not available (No Info)