Lending Club Case Study

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Title Lorem Ipsum

Aim

Analysis of **Defaulter** loans

Summary

Performing EDA on Lending Club data of past loan applicants

Goal

Finding **consumer attributes** and **loan attributes** influence the tendency of default

Problem Statement

◈ Lending Club is place facilitating different kinds of loans for different purposes. When the company receives a loan application, the company has to make a decision for loan approval based on the applicant's profile.

◈ We have the data from Lending Club about past loan applicants and whether they 'defaulted' or not.

◈ The aim is to identify patterns 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.

Data Sourcing

- ◈ The data we have for the analysis is during the period of 2007-2011 of Lending Club.

- ◈ The data for loan applicants contain three categories : Fully Paid, Charged Off, Current.

- ◈ We cannot infer anything from Current loan applicants, so we will only analyze data for Fully Paid and Charged Off loan applicants.

Data Cleaning

- ◈ Removed the columns with all null values and considerate amount of null values.

- ◈ Removed the single valued column

- ◈ Treated the outliers

- ◈ Derived metrics from the data and fixed the columns with correct datatypes and corrected values.
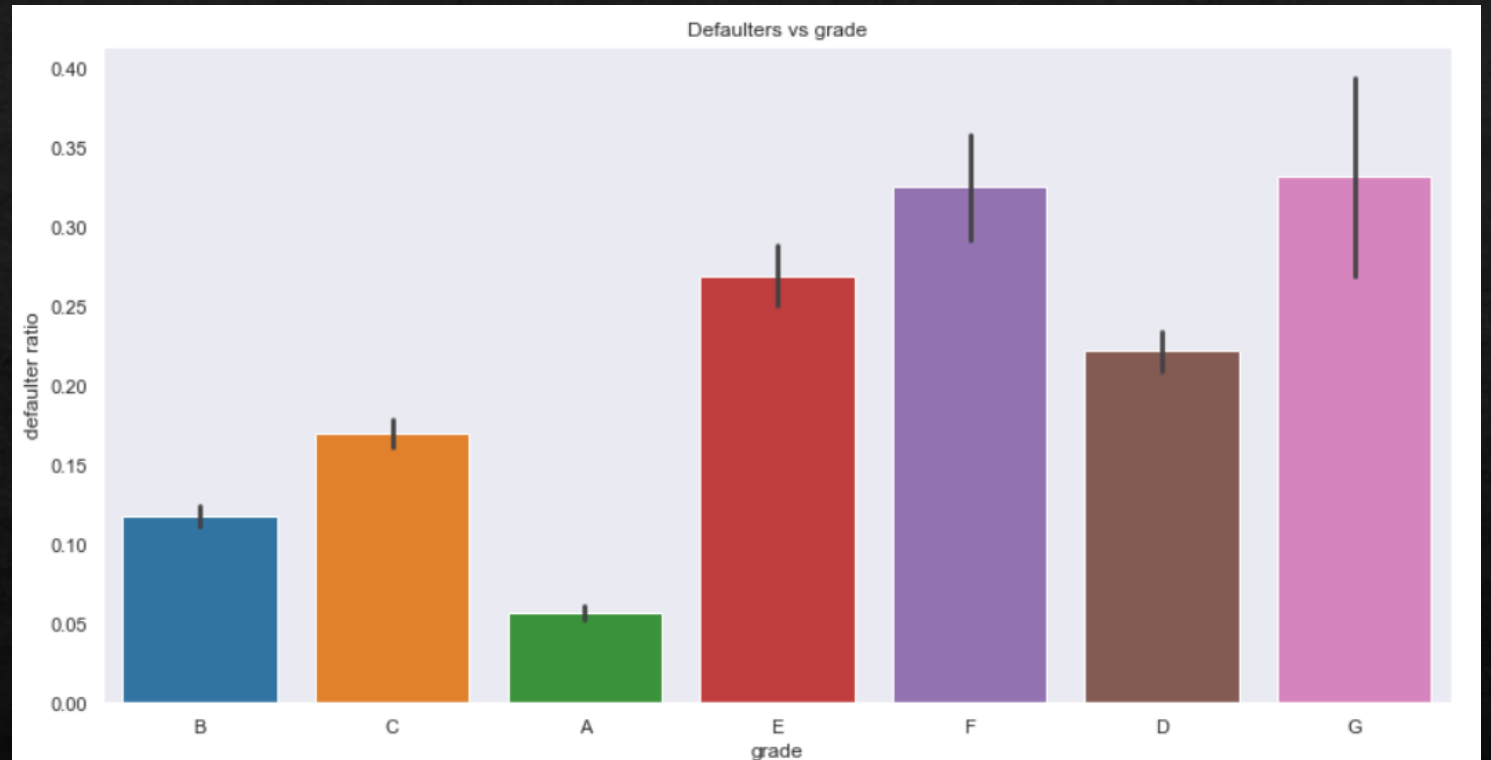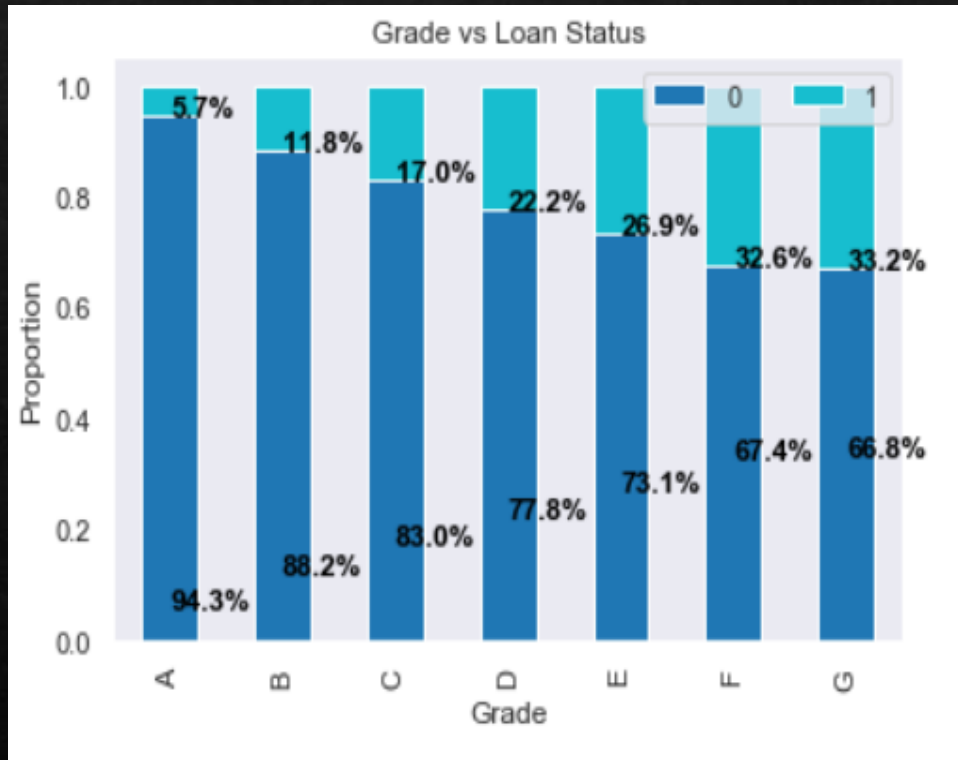
Loan Status vs Term
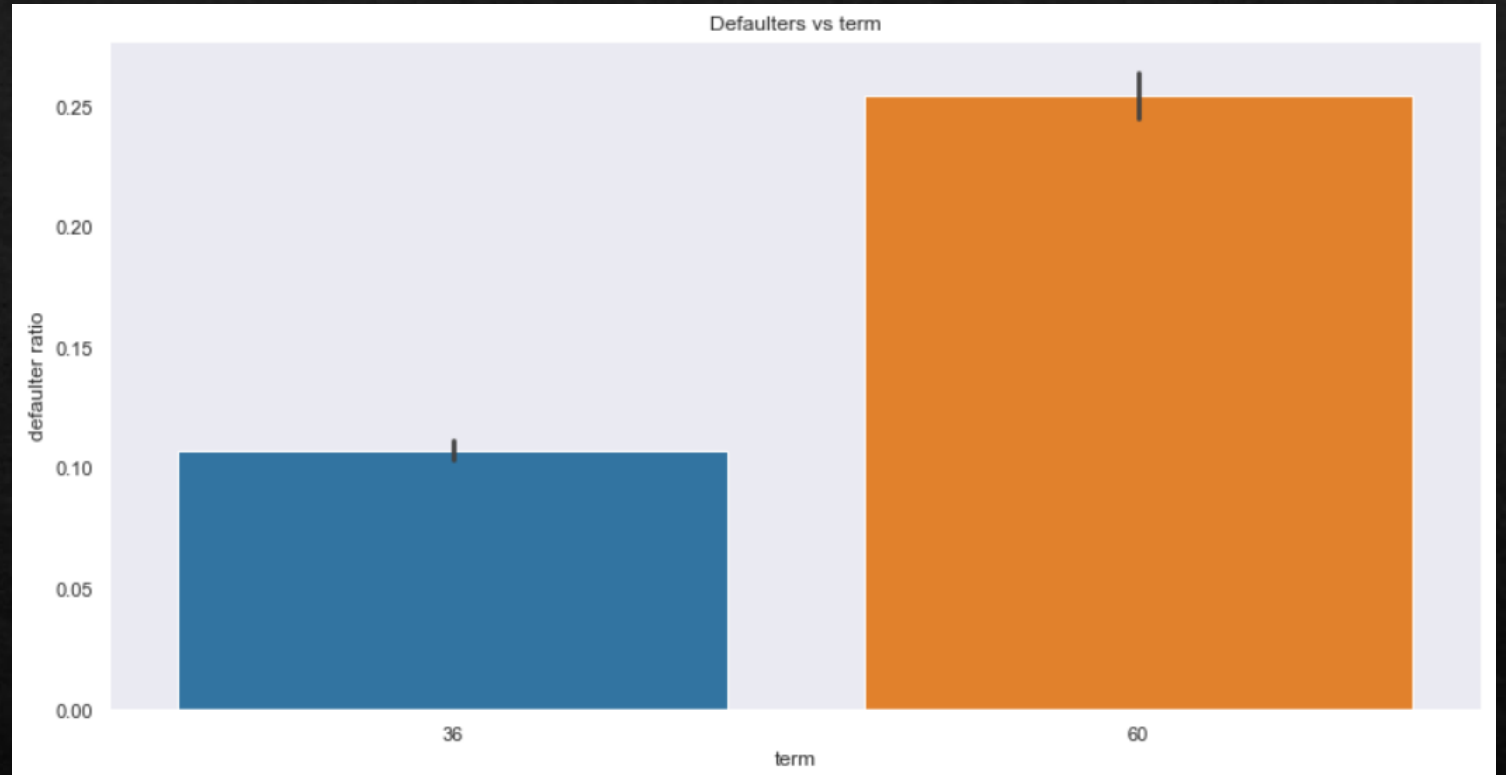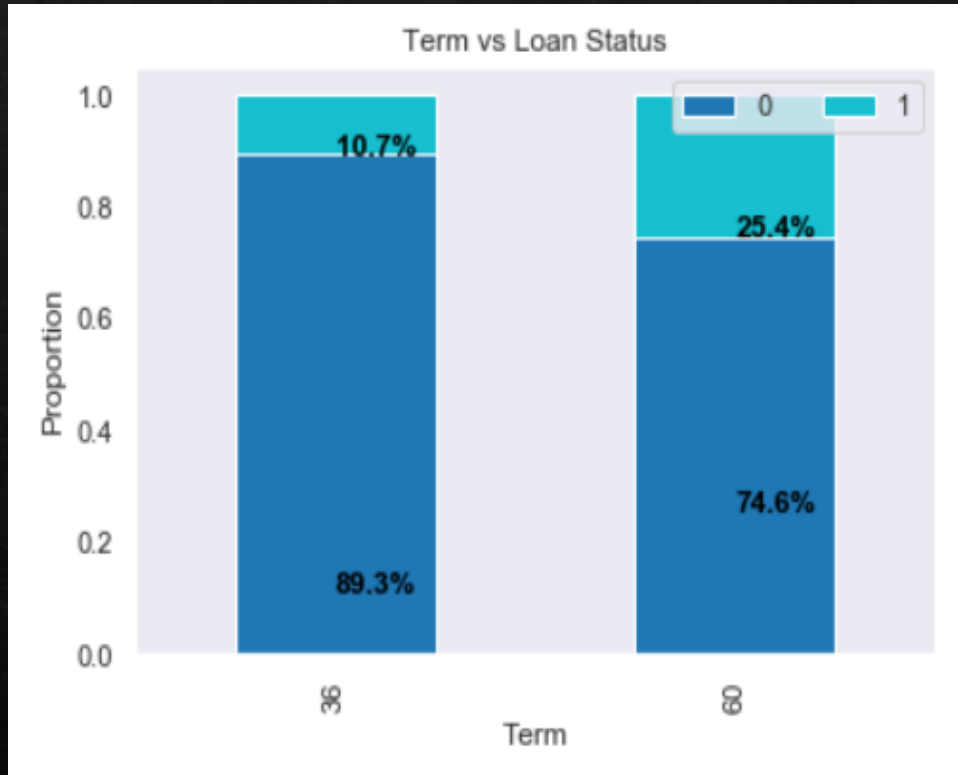
Customers with loan for 60 terms have high tendency to be defaulters than of those with 36 terms. We can infer that, customer with longer commitment for loan can be defaulters than with shorter commitments.

Loan Status vs Interest Rate
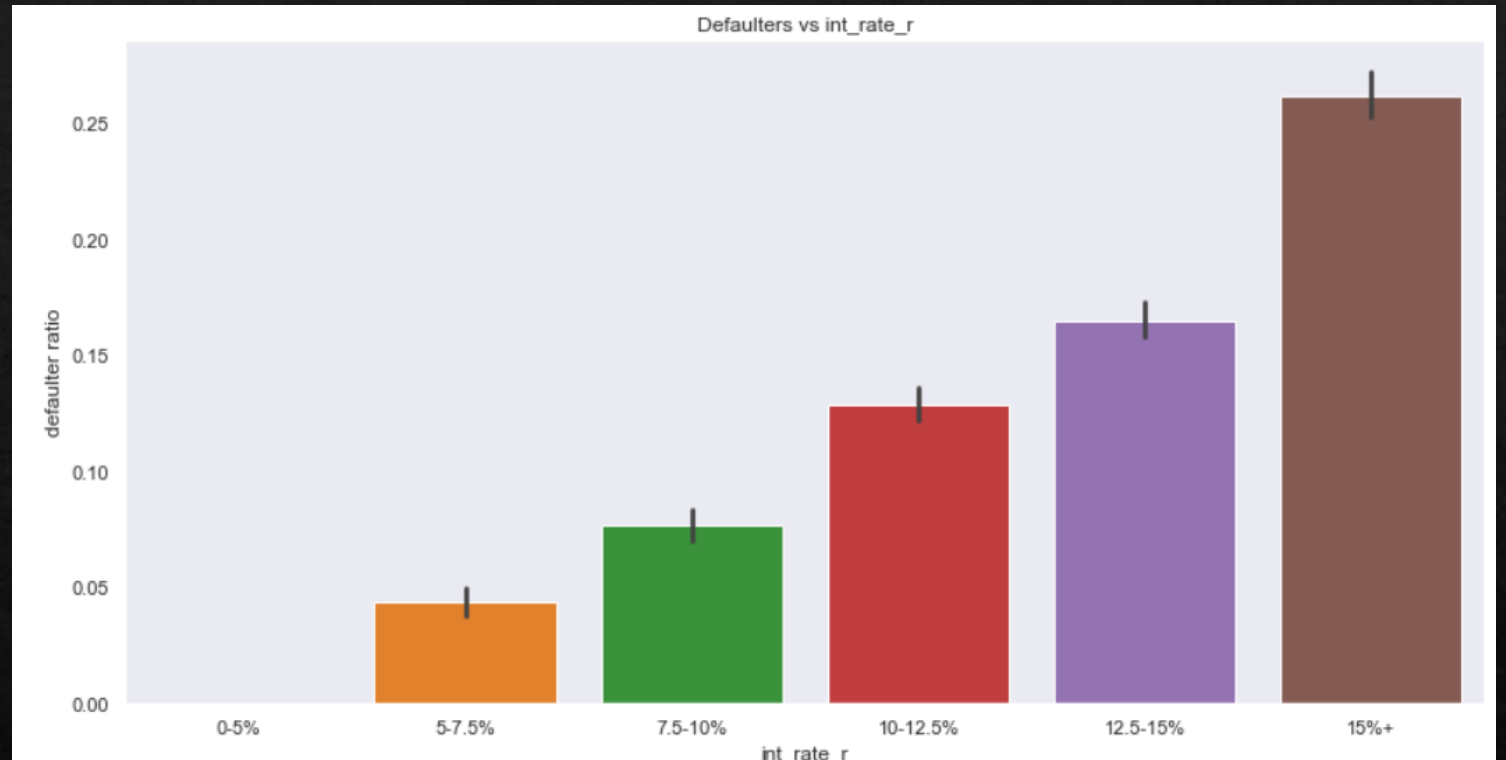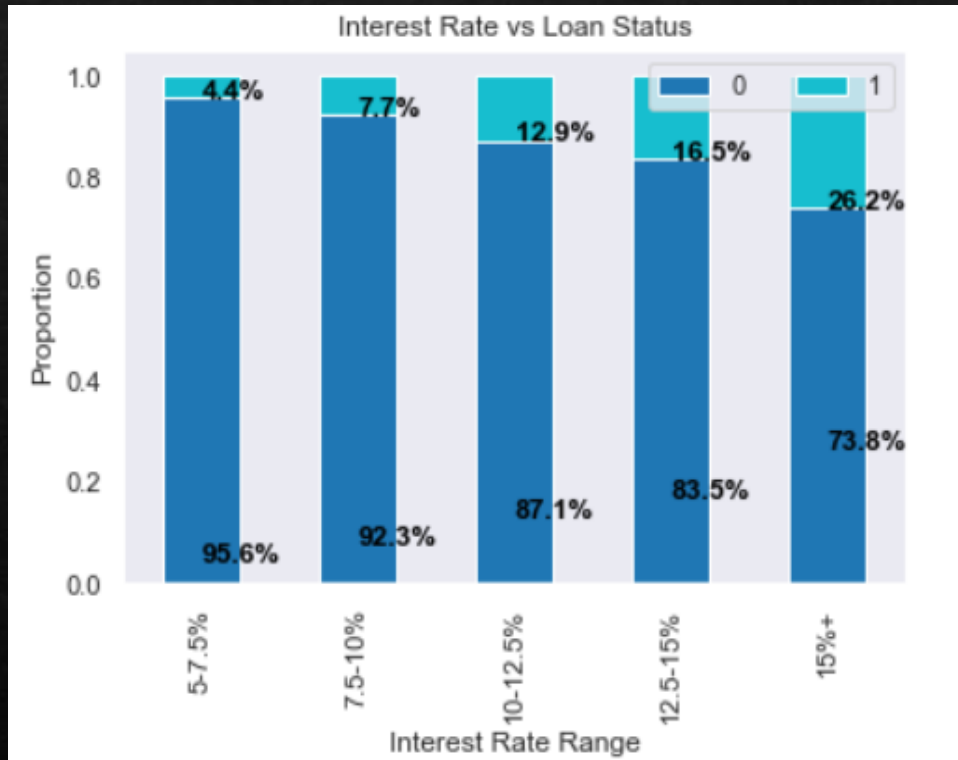
As we increase the interest rate for the loan, the chances of loan being charged off increases.
Higher the interest rate, higher the chances of the customer to be defaulter.
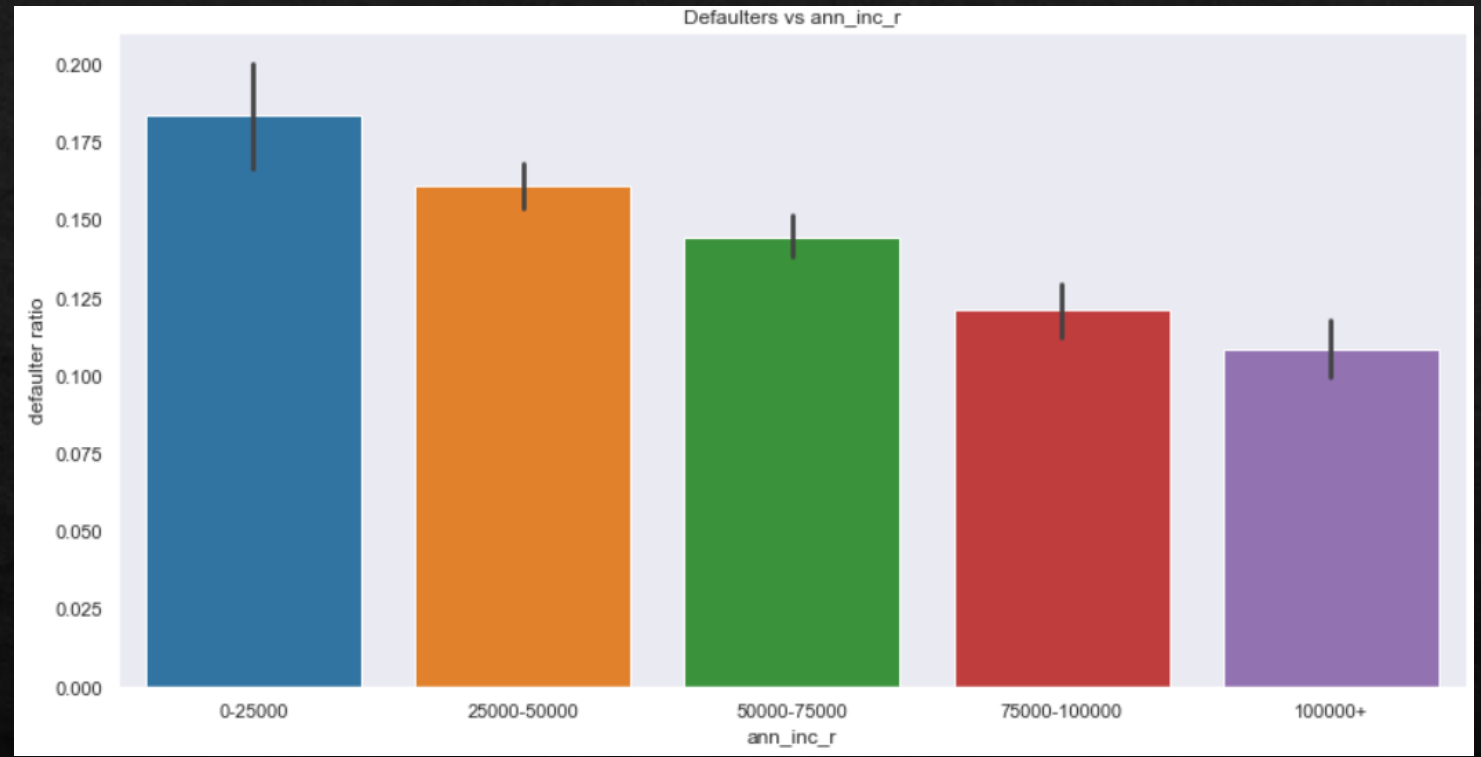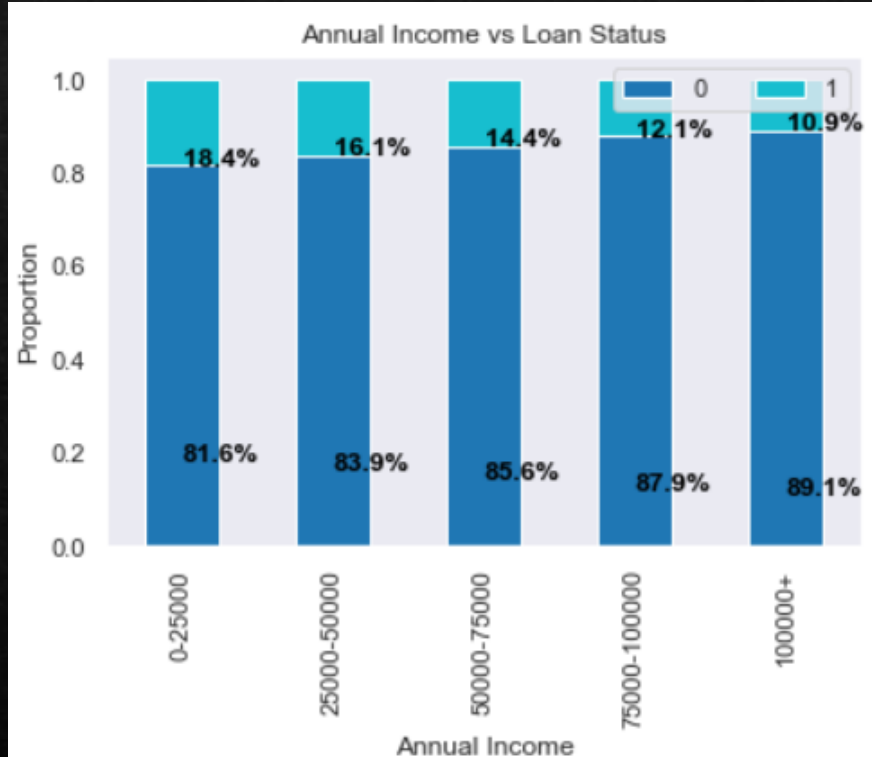
Loan Status vs Grade

As we go from left to right, with the category, the number of defaulters increases.
Club needs to check for the background thoroughly, if applicants is from category D, E or F.

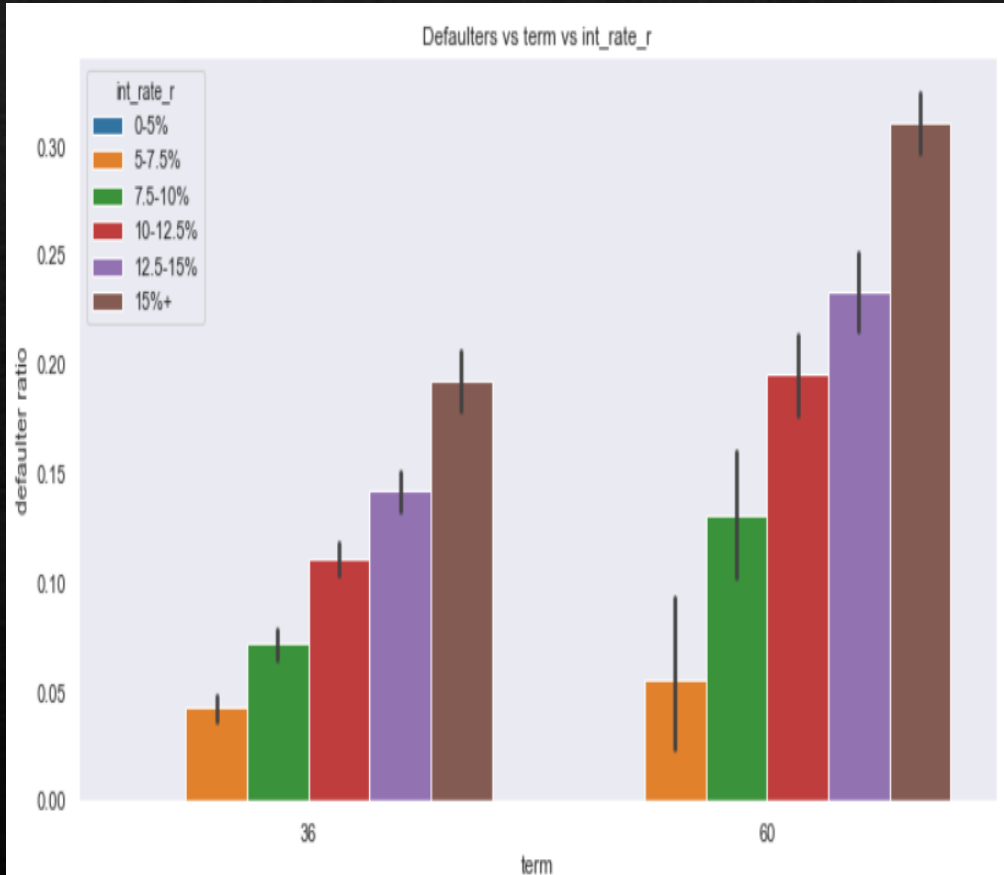# Loan Status vs Installment
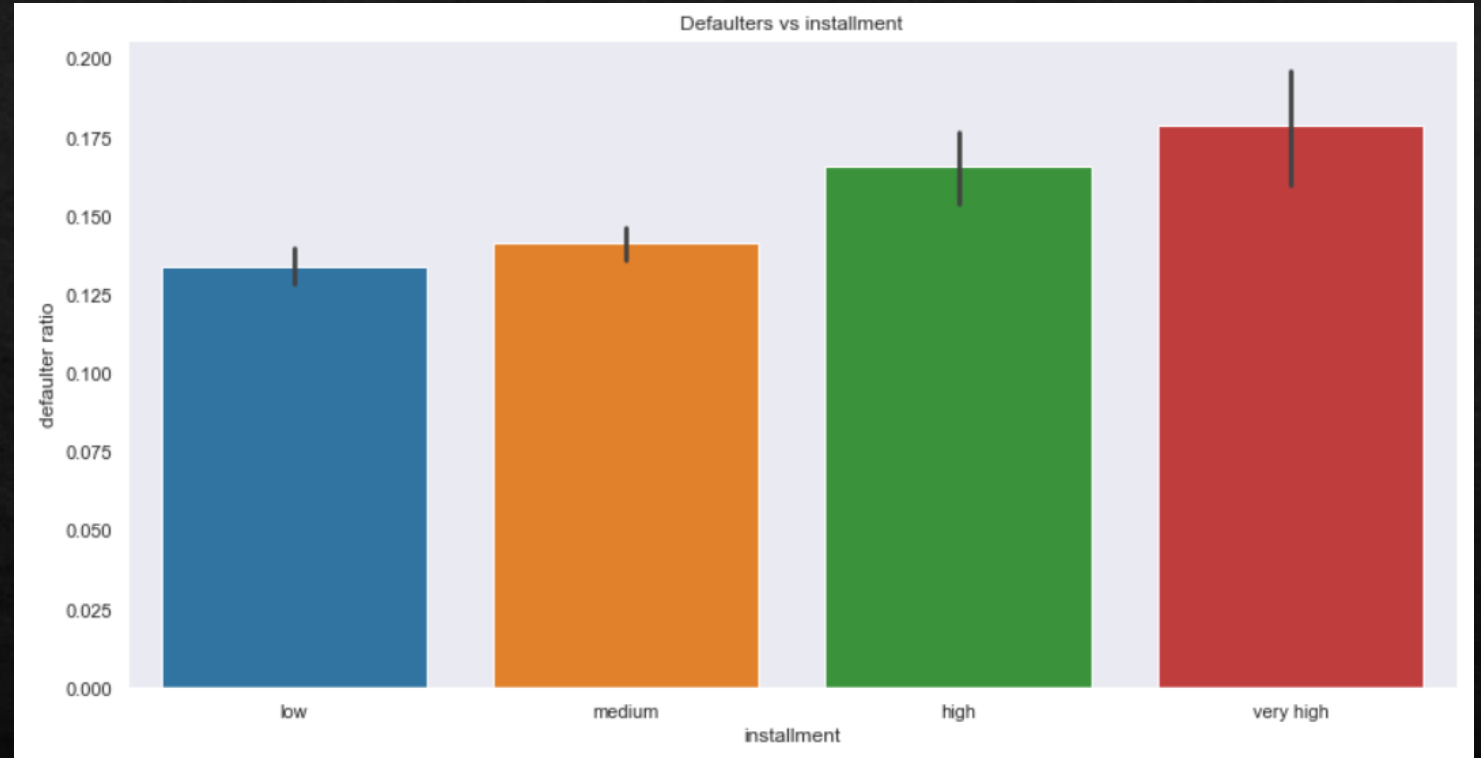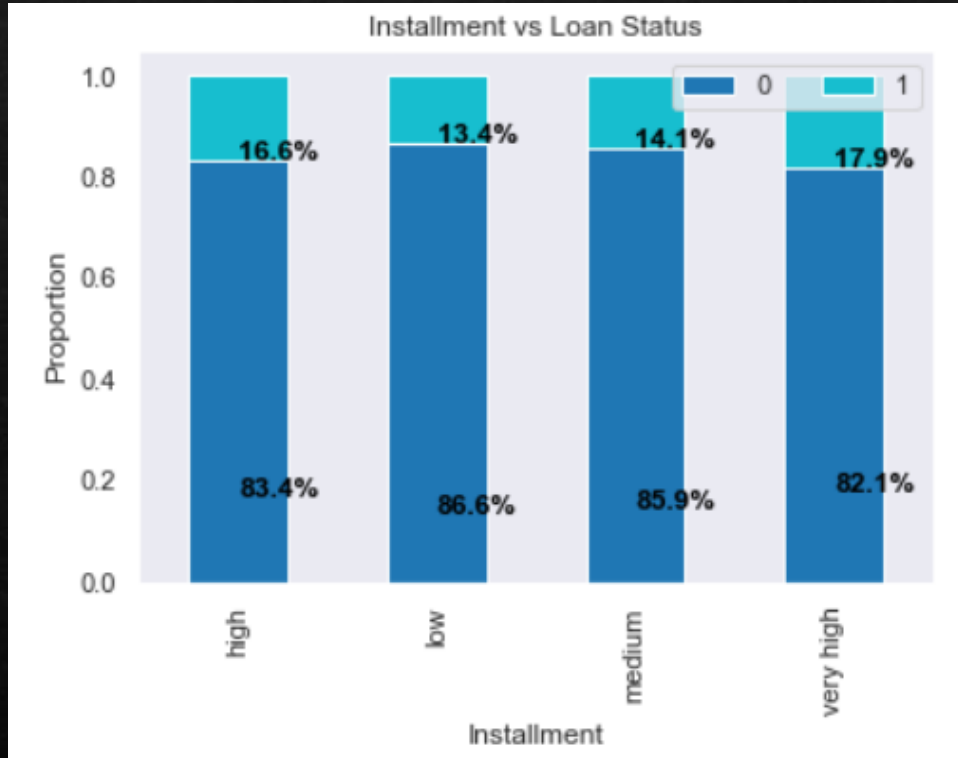
Customers with high and very installments are tend to defaulters than with low installments.
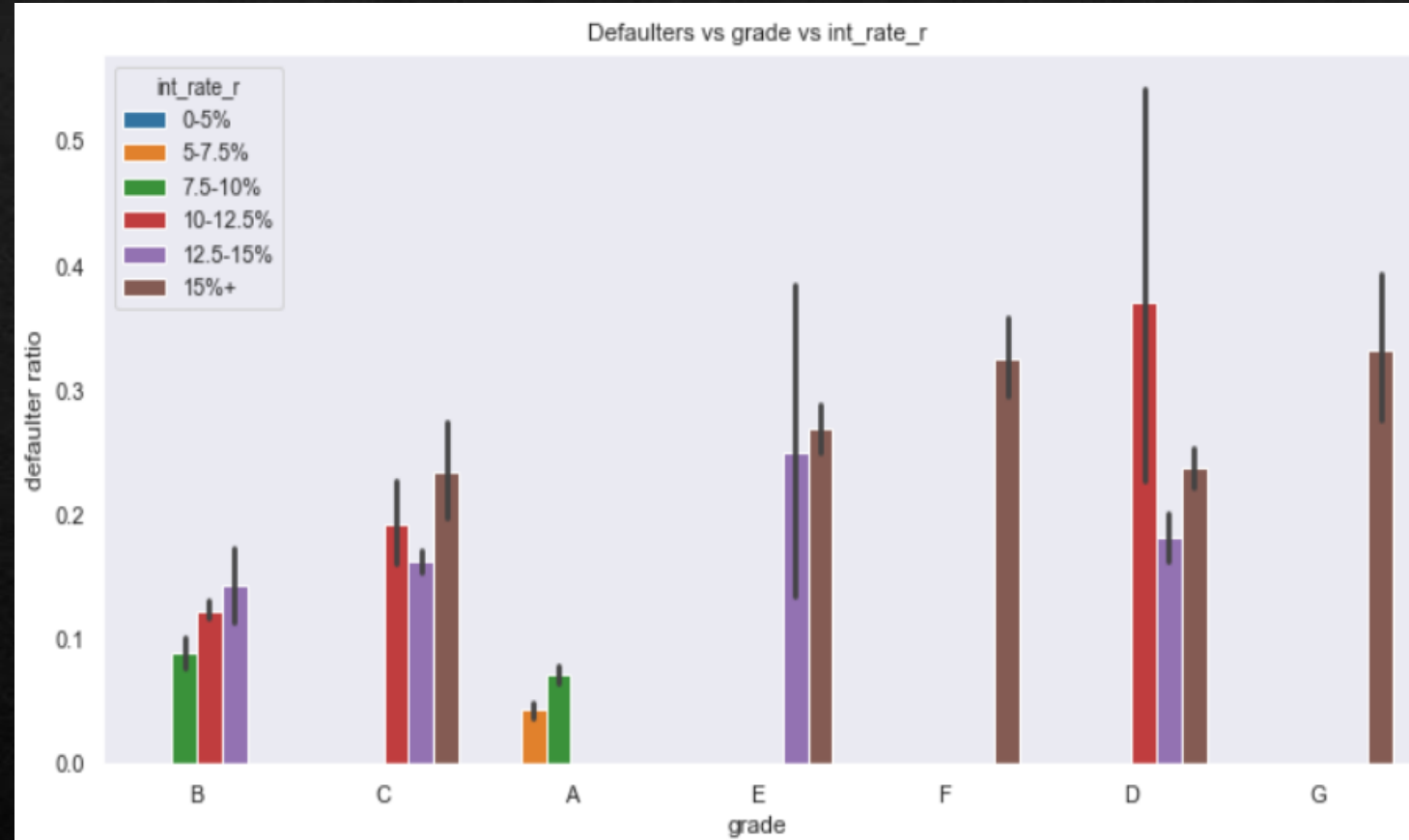
Loan Status vs Annual Income

Customers with high income, tend to pay the loan than with customers with low income.
We can infer that, as annual income(or salary) increase the chances to be defaulter decreases.

Loan Status Vs Term Vs Interest Rate

Loan Status Vs Interest Rate Vs Grade

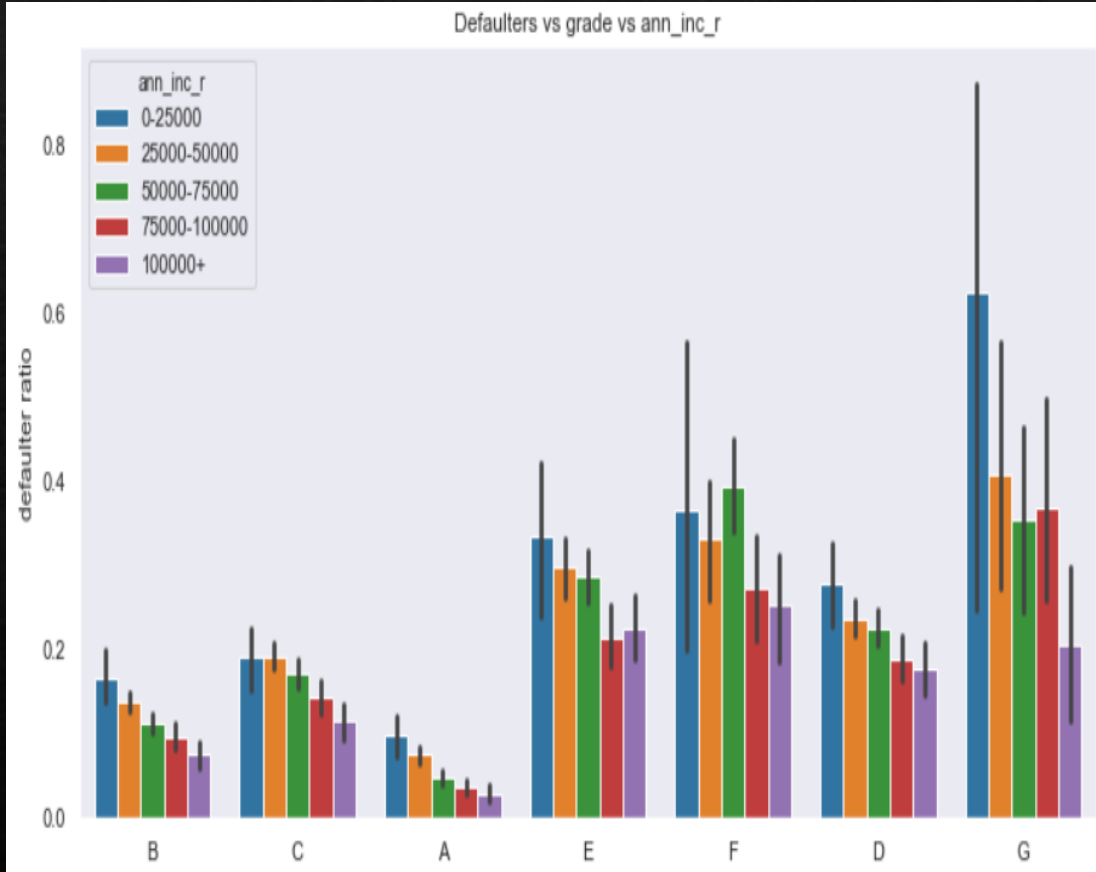The defaulter rate increases with increasing terms and increasing interest rate.

As category goes from A-G, we can see the interest rate increasing and for category D, E, F and G, the interest rates are more than 10% , also the defaulter rate is higher for high interest rates.

Loan Status Vs Grade Vs Annual Income

Loan Status Vs Installment vs Annual Income

The defaulter rate increases as we go from category A-G, but decreases with increasing annual income.
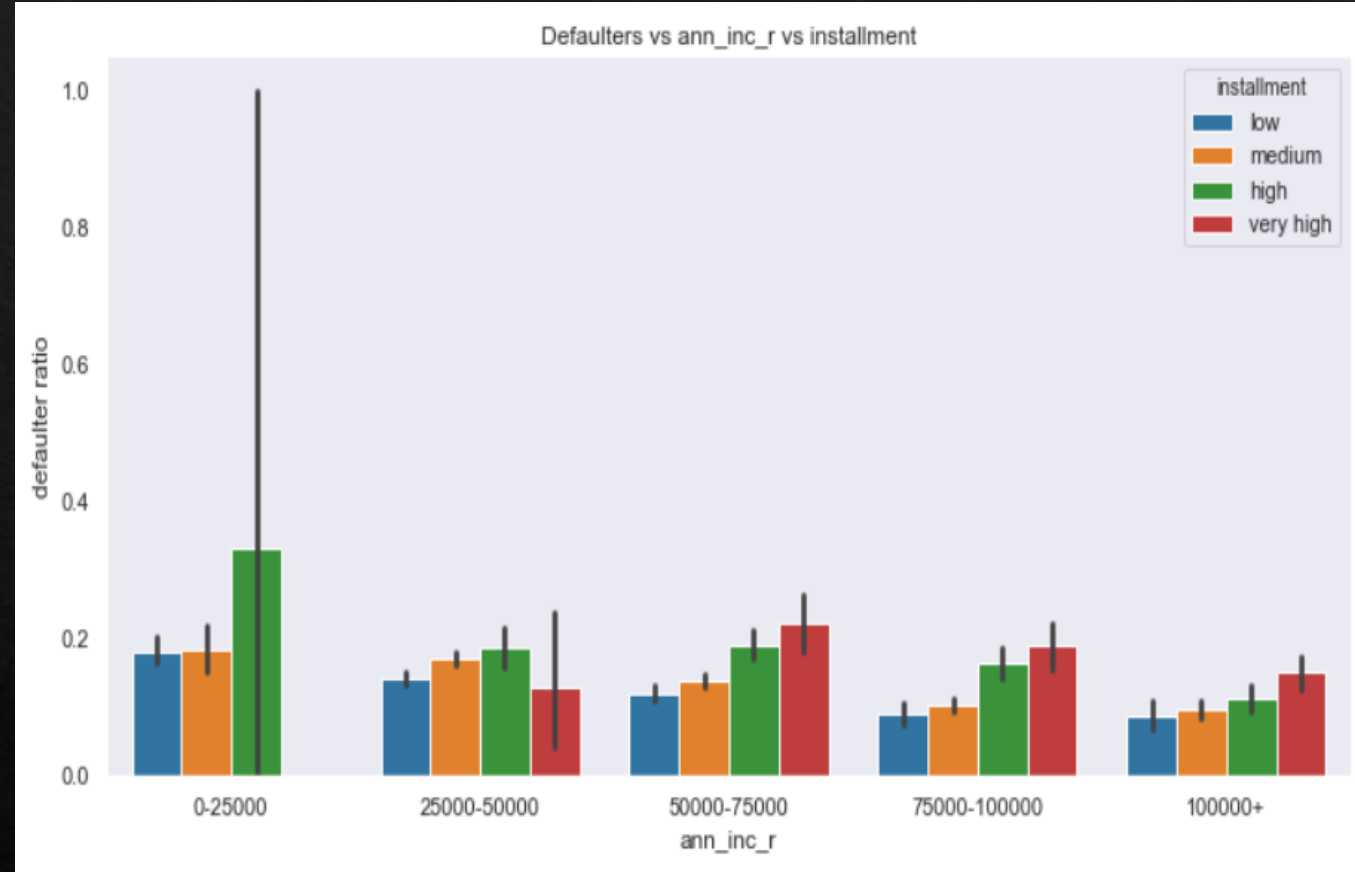
The defaulter rate decreases with increasing annual income with respect to installments.

Other factors that affect the loan payment

◈ If the Debt-to-Income ratio is higher(more than 20%), the chances of being defaulter increases.

◈ The purpose of loan like small business, educational are not that financially stable, so if the purpose is small business or educational, then the chances of being defaulter increases.

◈ If there are more derogatory public records and inquiries in last 6 months, the chances of being defaulter increases.

Key Takeaways from the Analysis

◈ Higher income decreases defaulter ratio.

◈ Higher interest rates increases defaulter ratio.

◈ When we go from category A-G, the defaulter ratio increases and also the interest rates are high for categories D, E, F and G.

◈ Higher the number of terms, higher the defaulter ratio.

◈ High and very high installments tend to have higher defaulter ratio.

◈ Category A and B have low interest rates as well as low defaulter ratio, so more loans can accepted for that applicants.

◈ High income is also a feature of customers that pays loans, so more loans can be accepted for customers with high income.

◈ Unsecured Purposes like small business and educational loans tend to be charged off.

◈ More number of derogatory public records and inquiries for last 6 months can increase the chances of being defaulter.