

LENDING CLUB

Case Study Submission

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Problem Statement / Background

Background:

Lending Club is the largest online loan marketplace, facilitating personal loans, business loans, and financing of medical procedures. It enables borrowers to easily access lower interest rate loans via fast online interface.

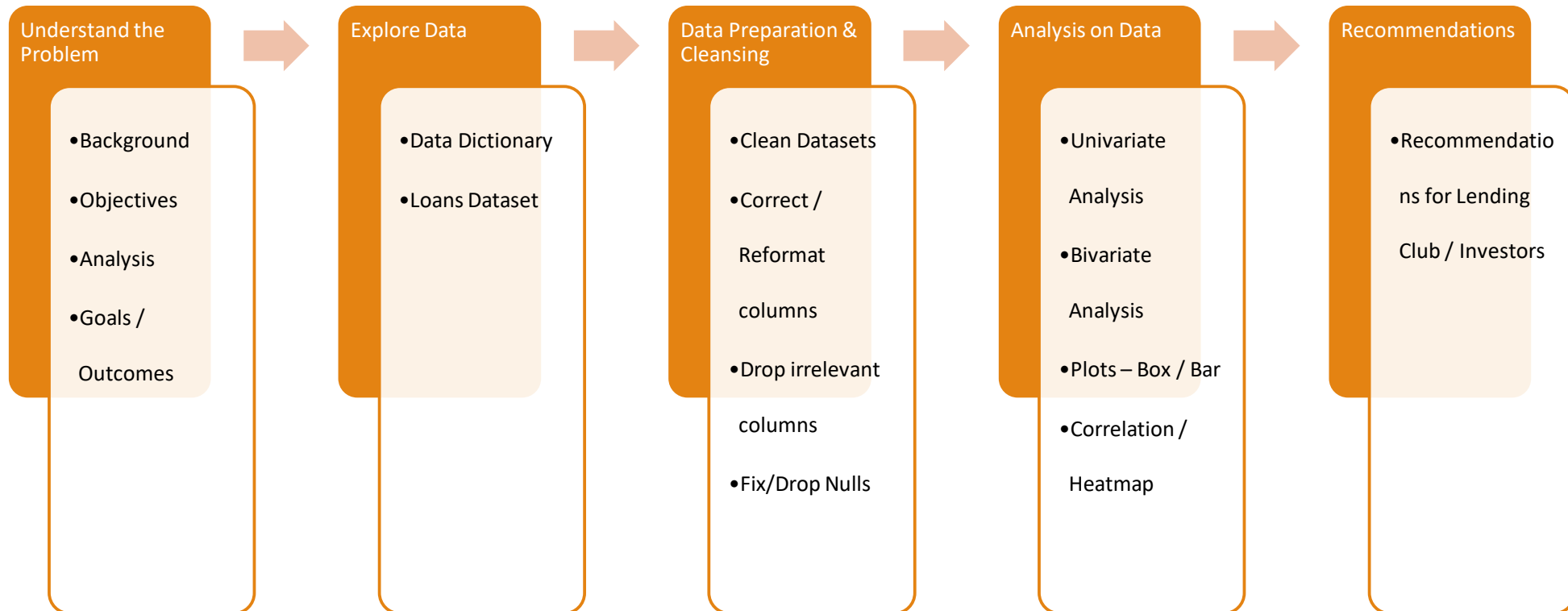
Business Objectives:

To identify which loan applicants are more riskier to provide loan, eventually helping investors cut down on loss due to defaults. Its an attempt to identify parameters using EDA for identifying customers who are most likely to default.

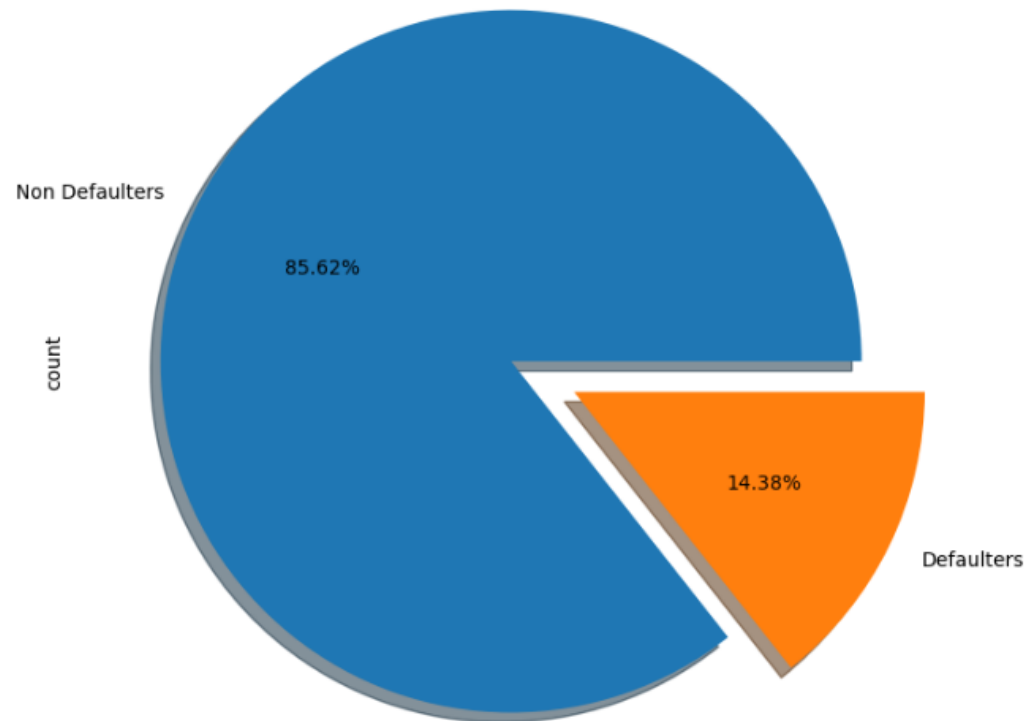
Goals:

1. Understand the various variables provided and segregate them into various Demographic, Loan specific and Customer characteristics/behaviors.
2. Identify drivers/parameters behind defaults.
3. Identify correlation among various driving factors identified.

Process / Methodology

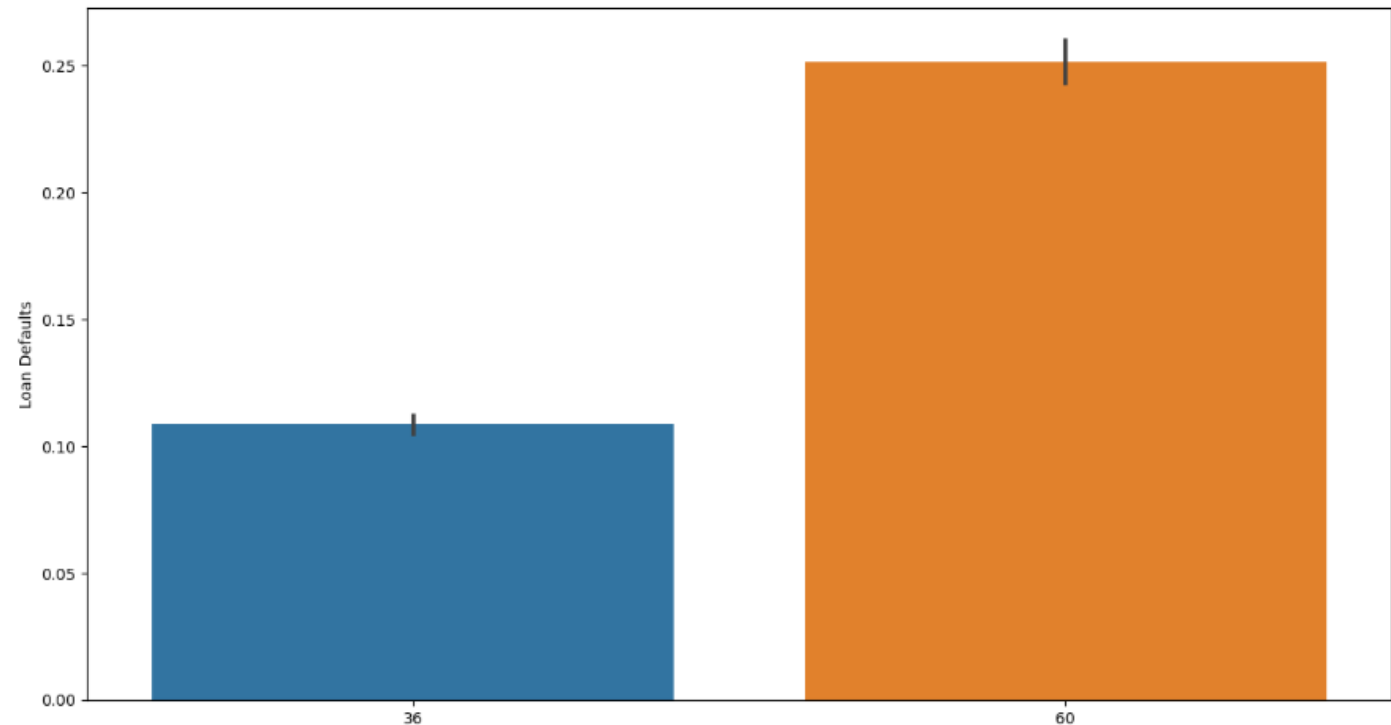


Understanding Data



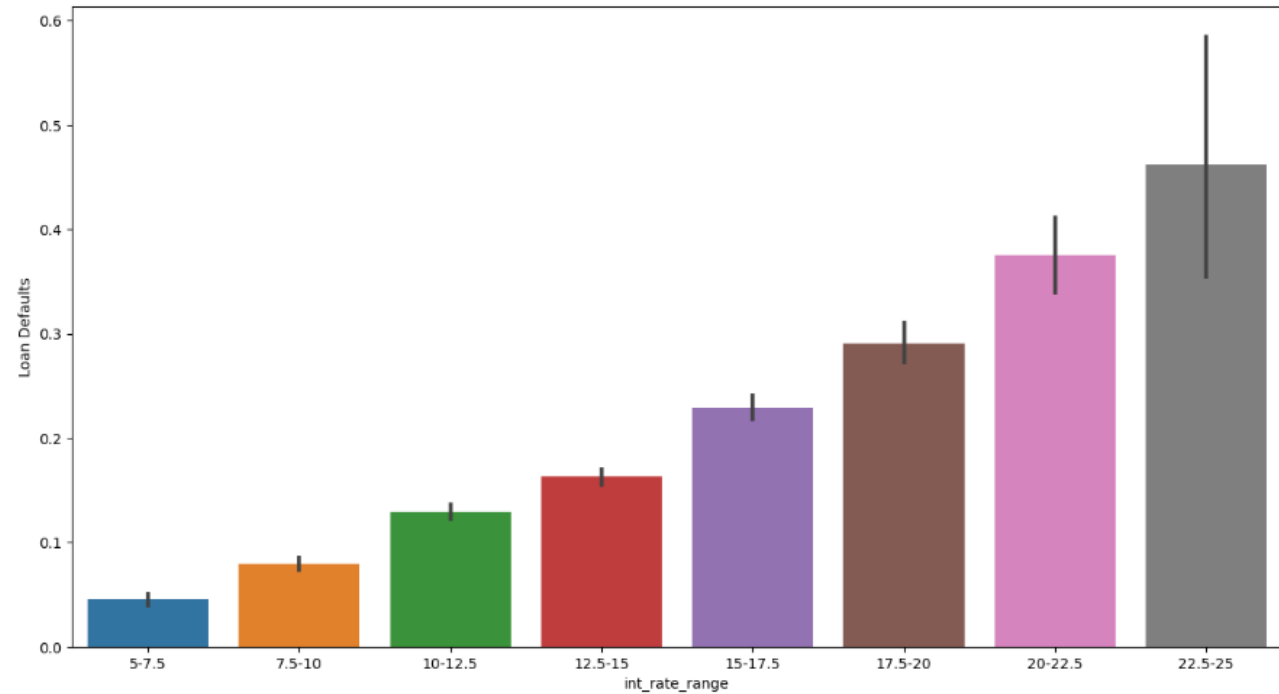
Observation 1 – Loan Term

Based on loan term data from dataset it is clearly evident that with longer loan term (60 month) the number of defaults increase significantly as compared to shorter loan term (36 month)



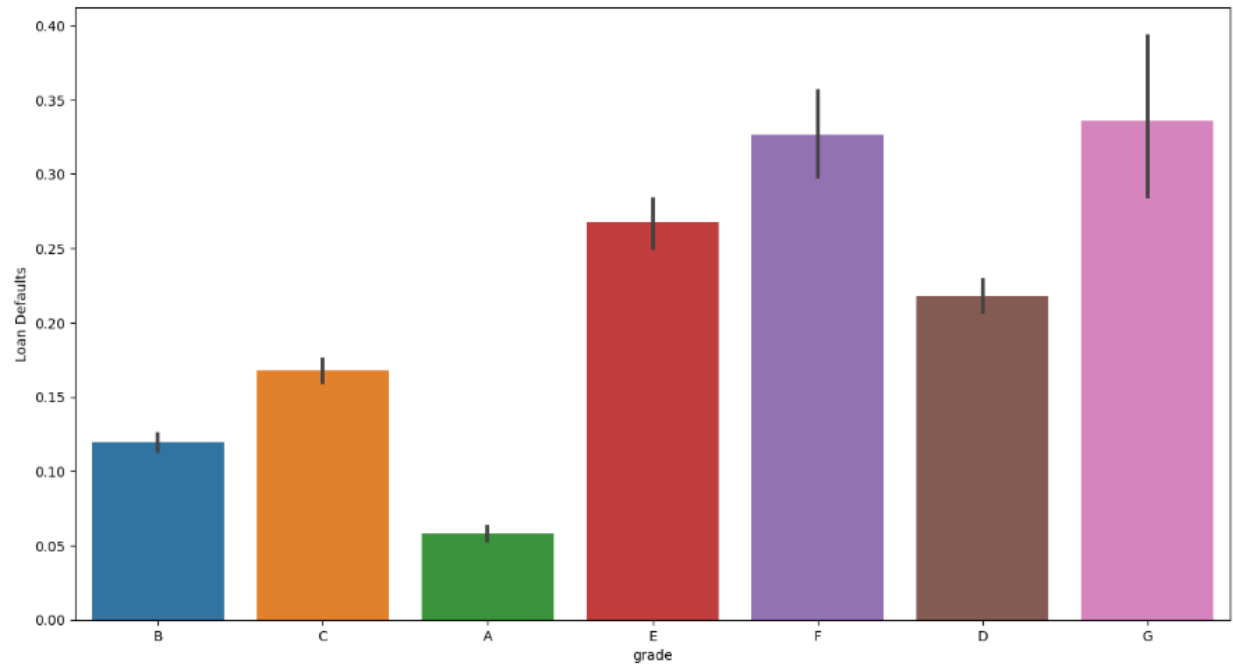
Observation 2 – Interest Rate

For higher interest rates,
number of defaults is
higher



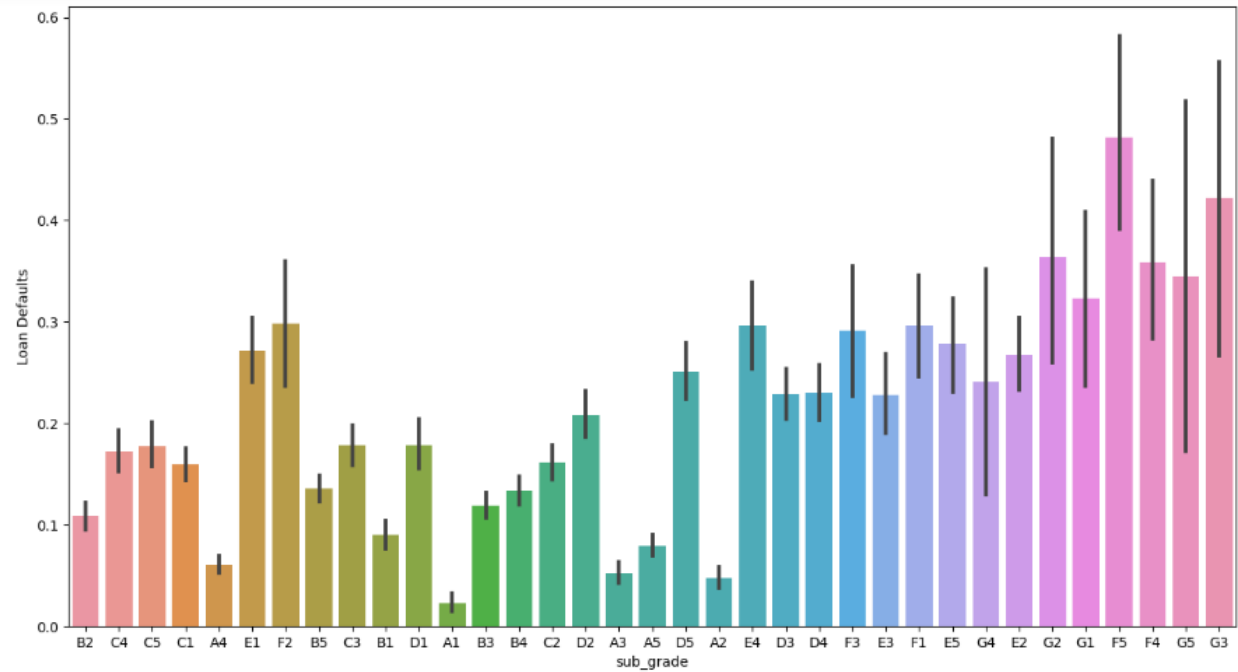
Observation 3 – Grade

Based on the data available it is clearly evident that the defaulters increase as we move onto from Grade A to G.



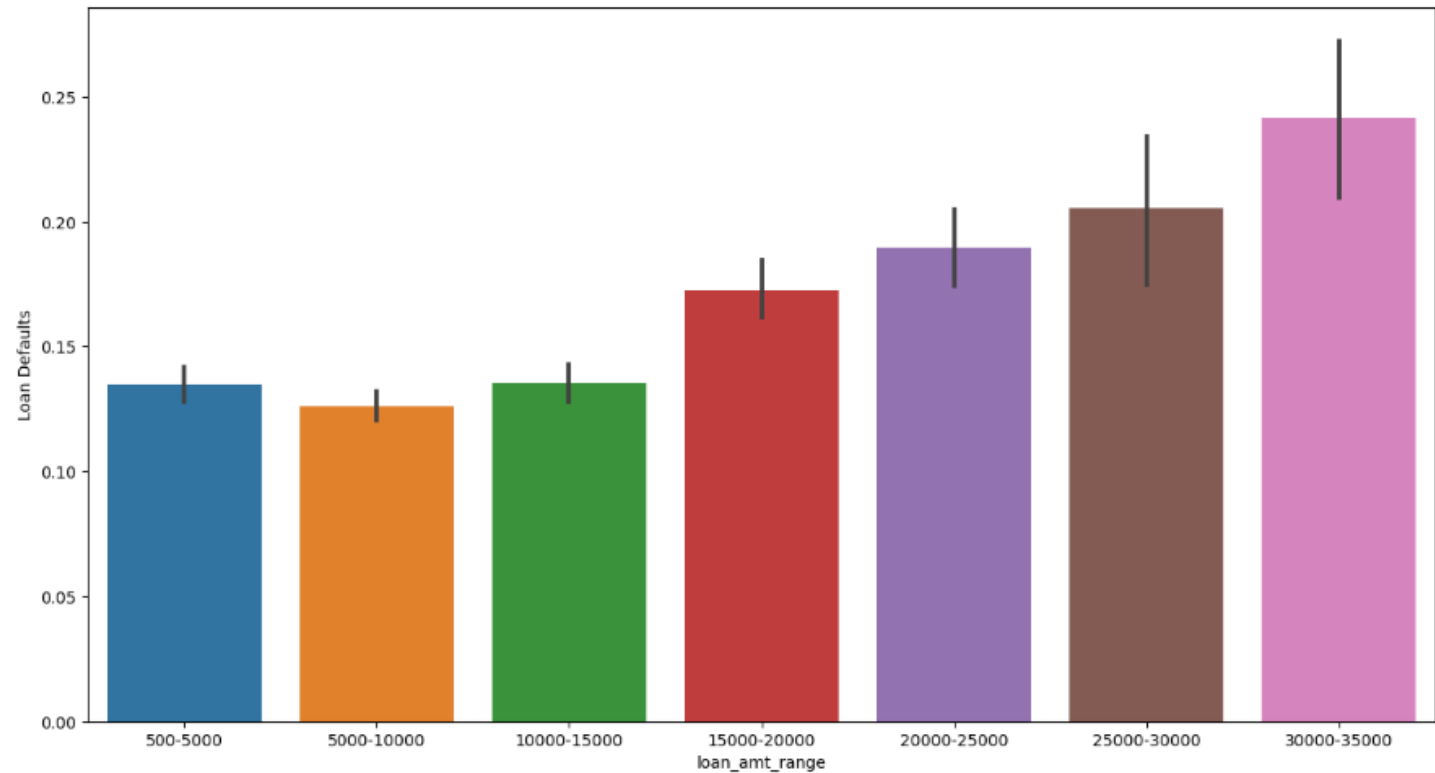
Observation 4 – Sub Grade

Defaults varies across sub grades however F5 & G3 come out as the ones with highest number of defaults.



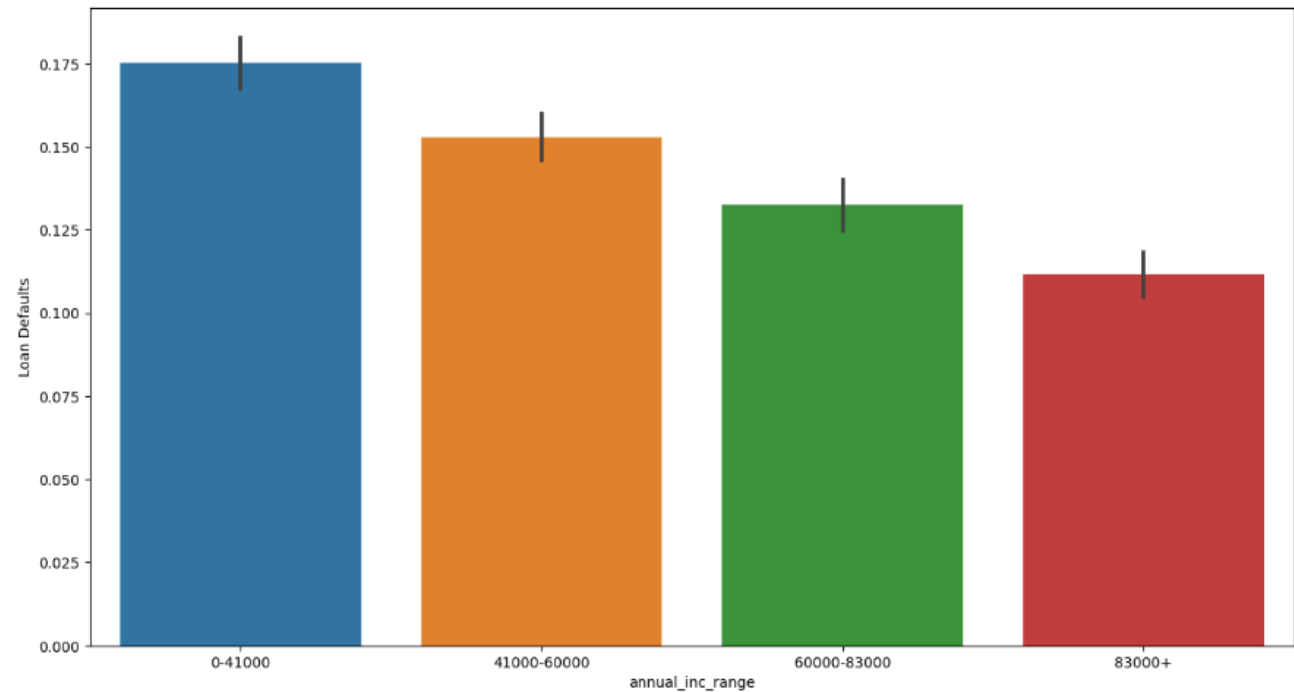
Observation 5 – Loan Amount

It comes out that higher the loan amount, more likely the chances of a default



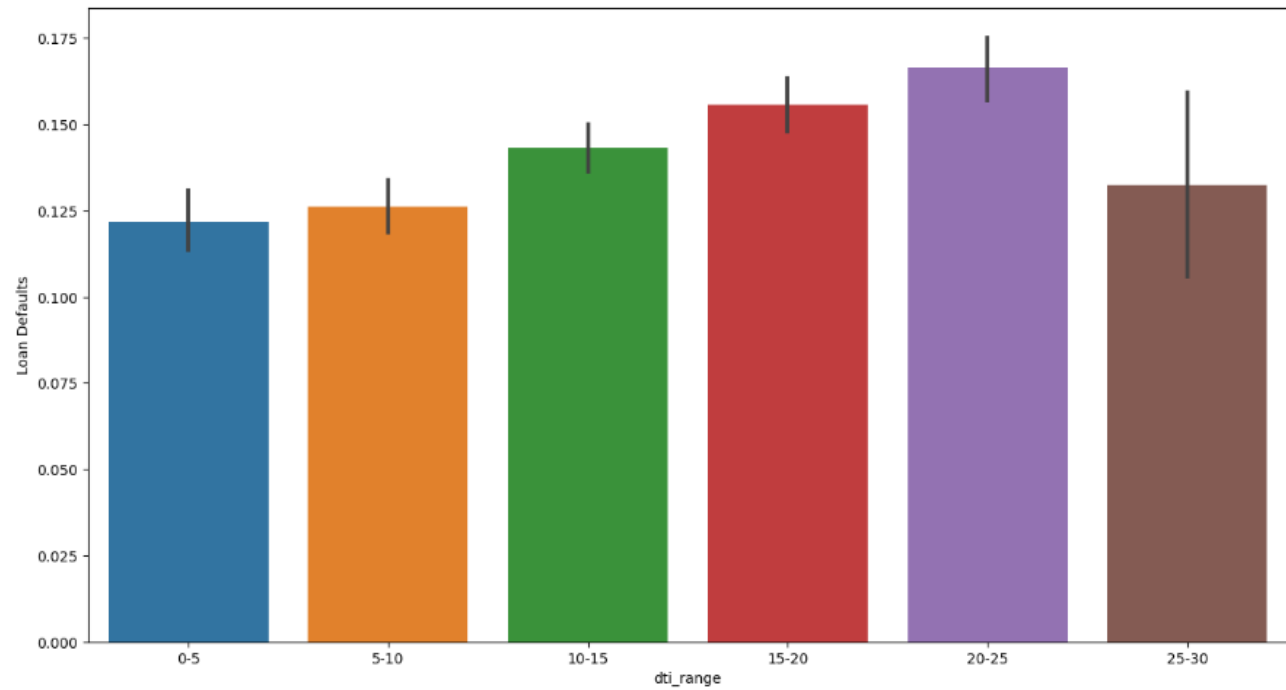
Observation 6 – Annual Income Range

Chances of default are more with lower income groups as compared to higher income groups



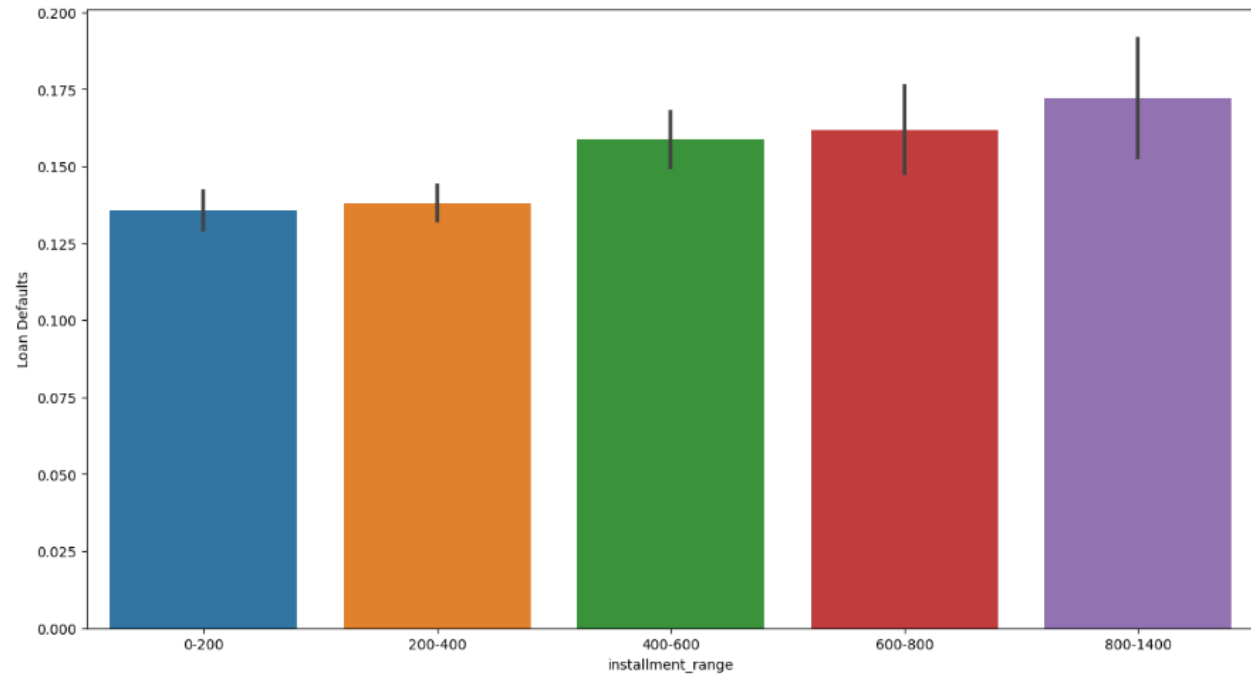
Observation 7 – DTI (Debt to Income)

Chances of default increase as we move towards higher DTI range with an exception dip in 25-30



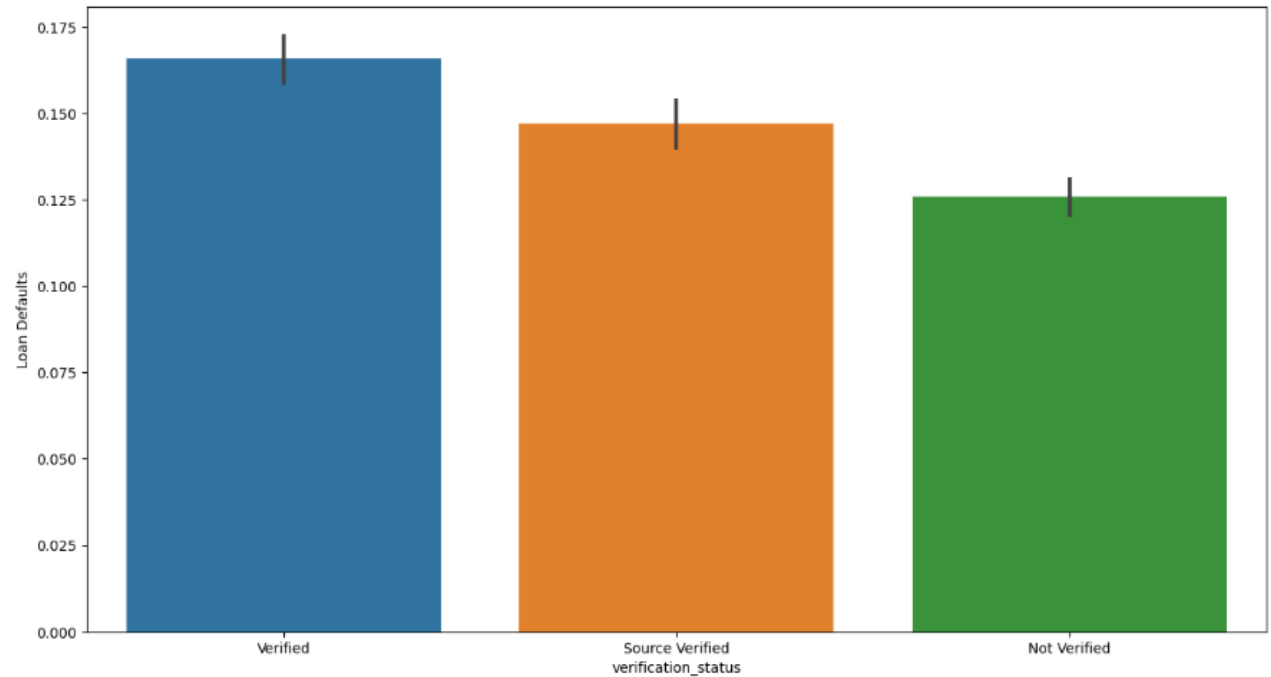
Observation 8 – Installment Range

Clearly evident that loan defaults increase over an extended installment range



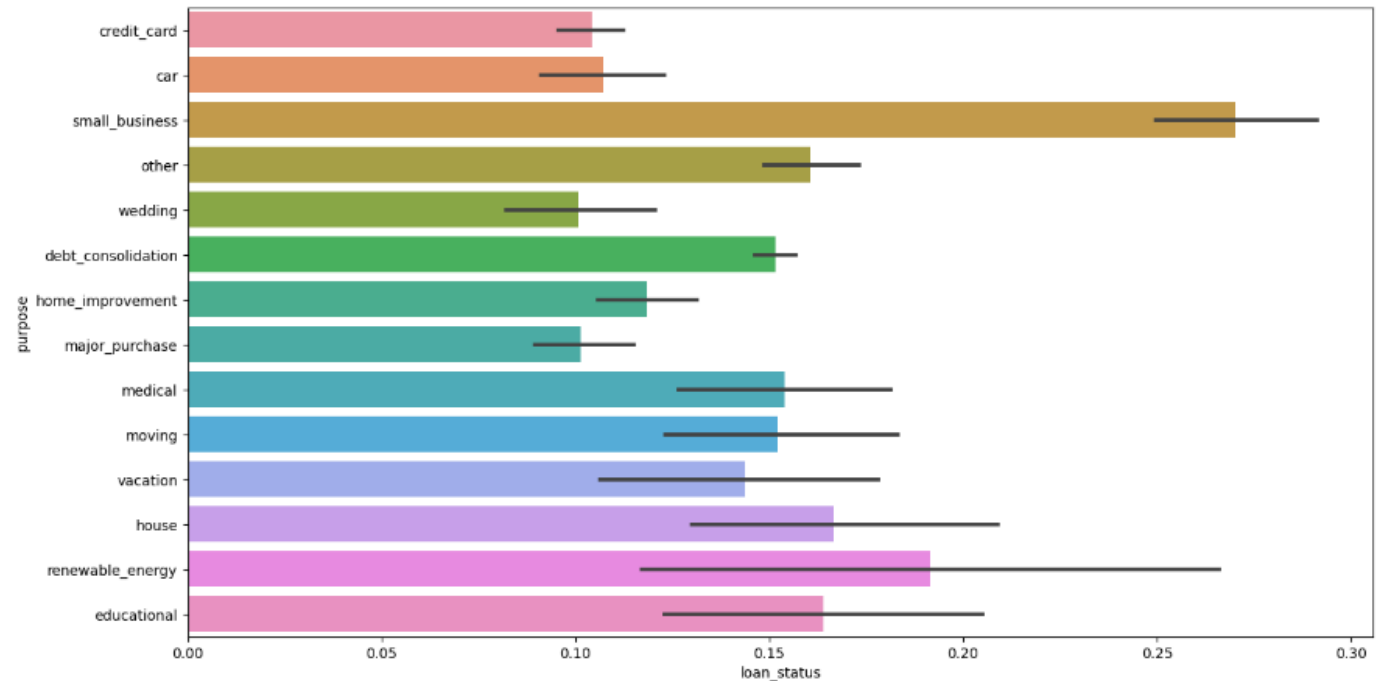
Observation 9 – Verification Status

It comes out that defaults are across all verification status types however it is the maximum for verified ones



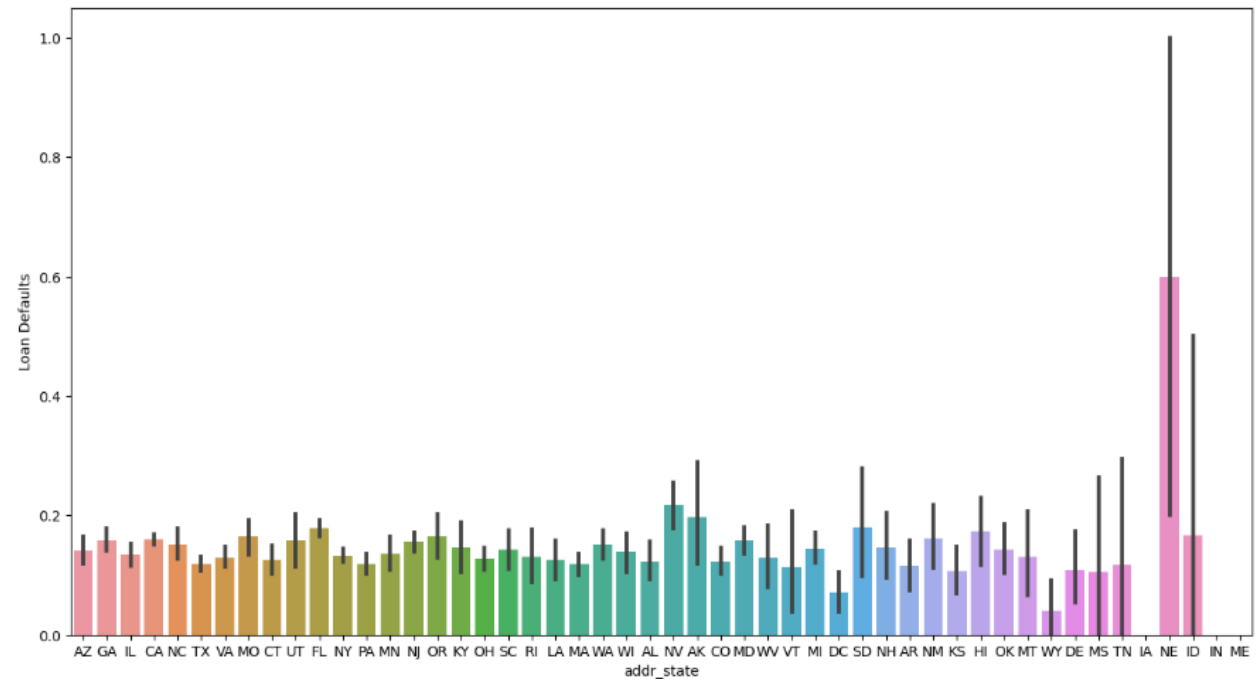
Observation 10 – Purpose

While there are defaults for all loan purposes however small business purpose has significantly higher defaulters



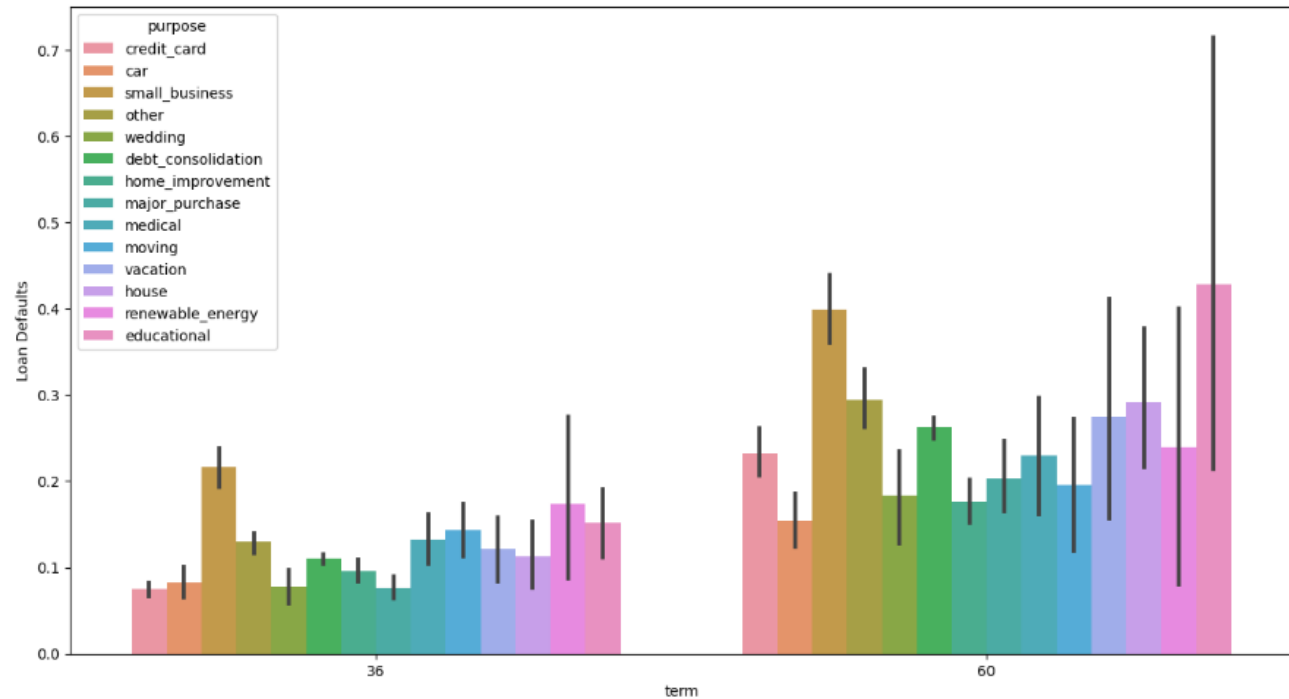
Observation 11 – Address State

Small amount of variability is observed across all states however NE is clearly home to highest number of defaults



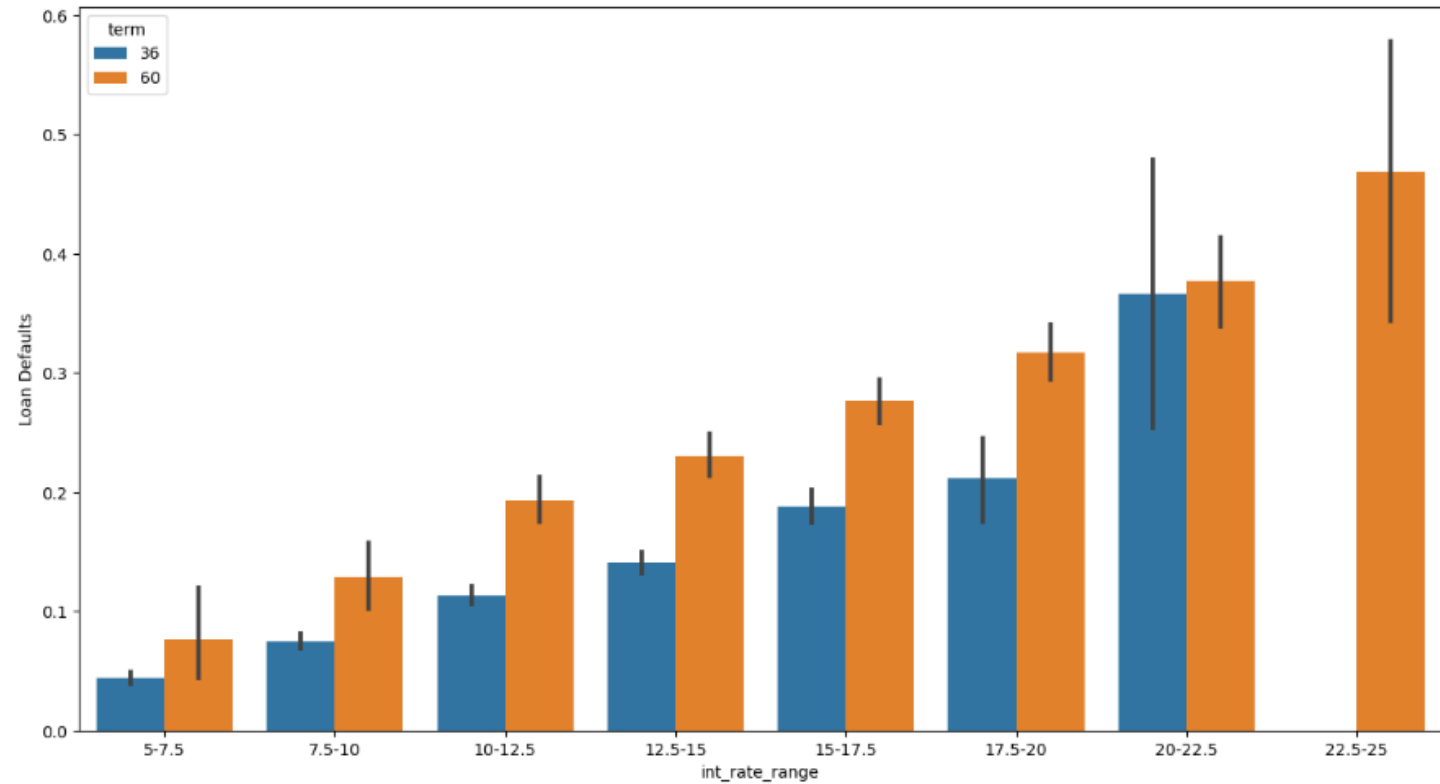
Observation 12 – Term & Purpose

It comes out clearly that number of defaults increase with increase in loan term across all purposes



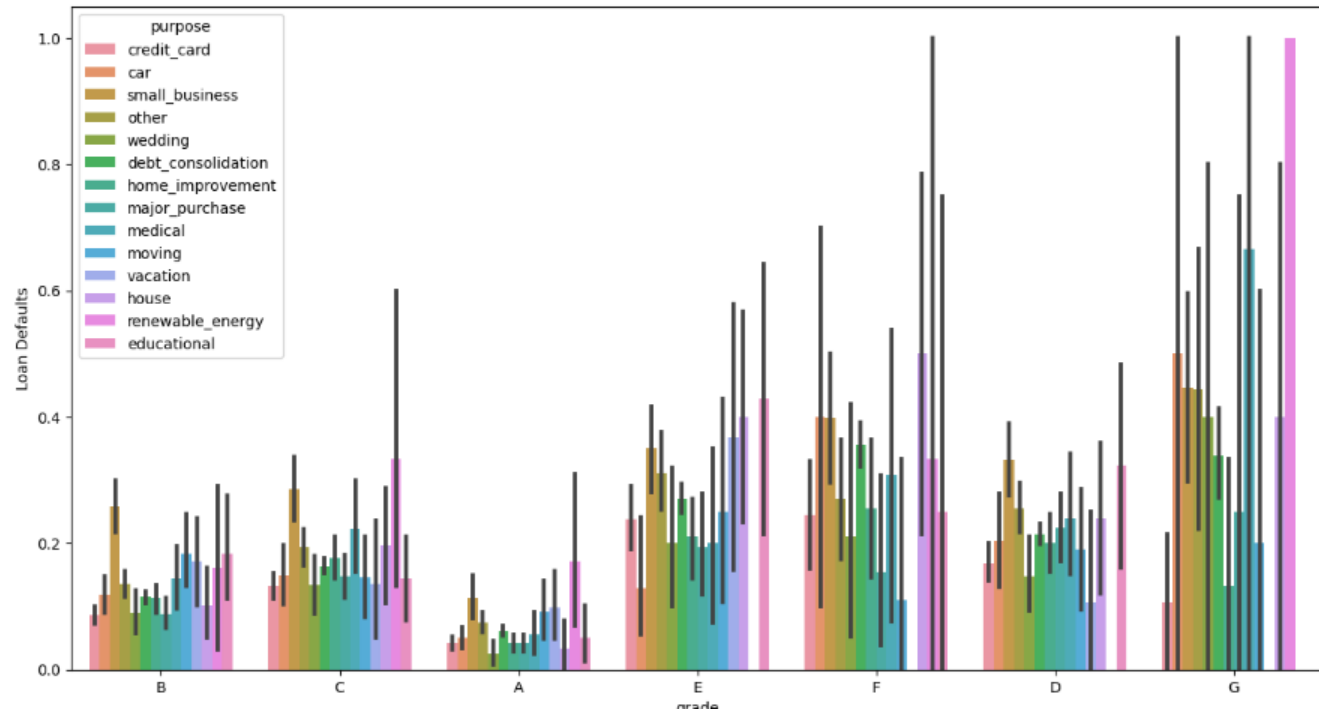
Observation 13 – Term & Interest Rate

Its clearly evident that higher the interest rate higher the chances of default across both terms (36/60 months)



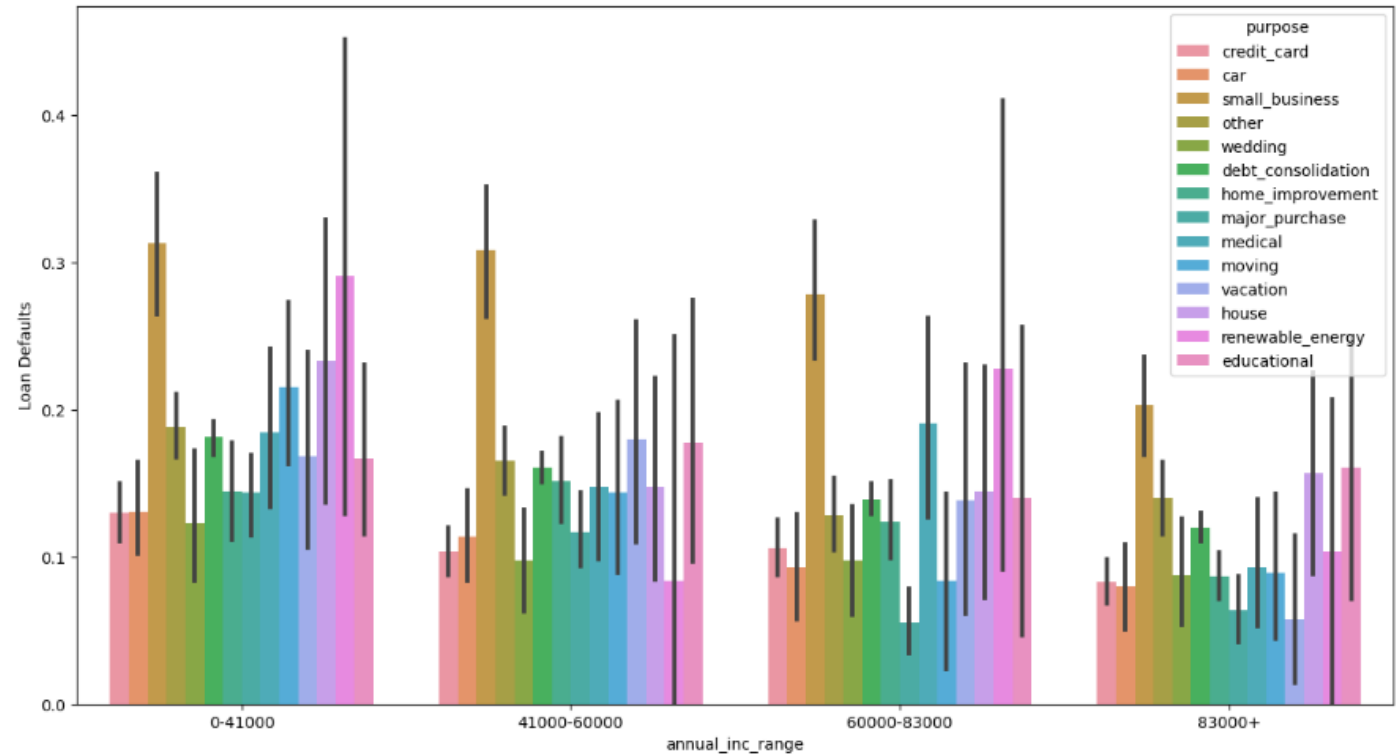
Observation 14 – Grade & Purpose

As we move from grade A to G, the number of defaults increase across all purposes



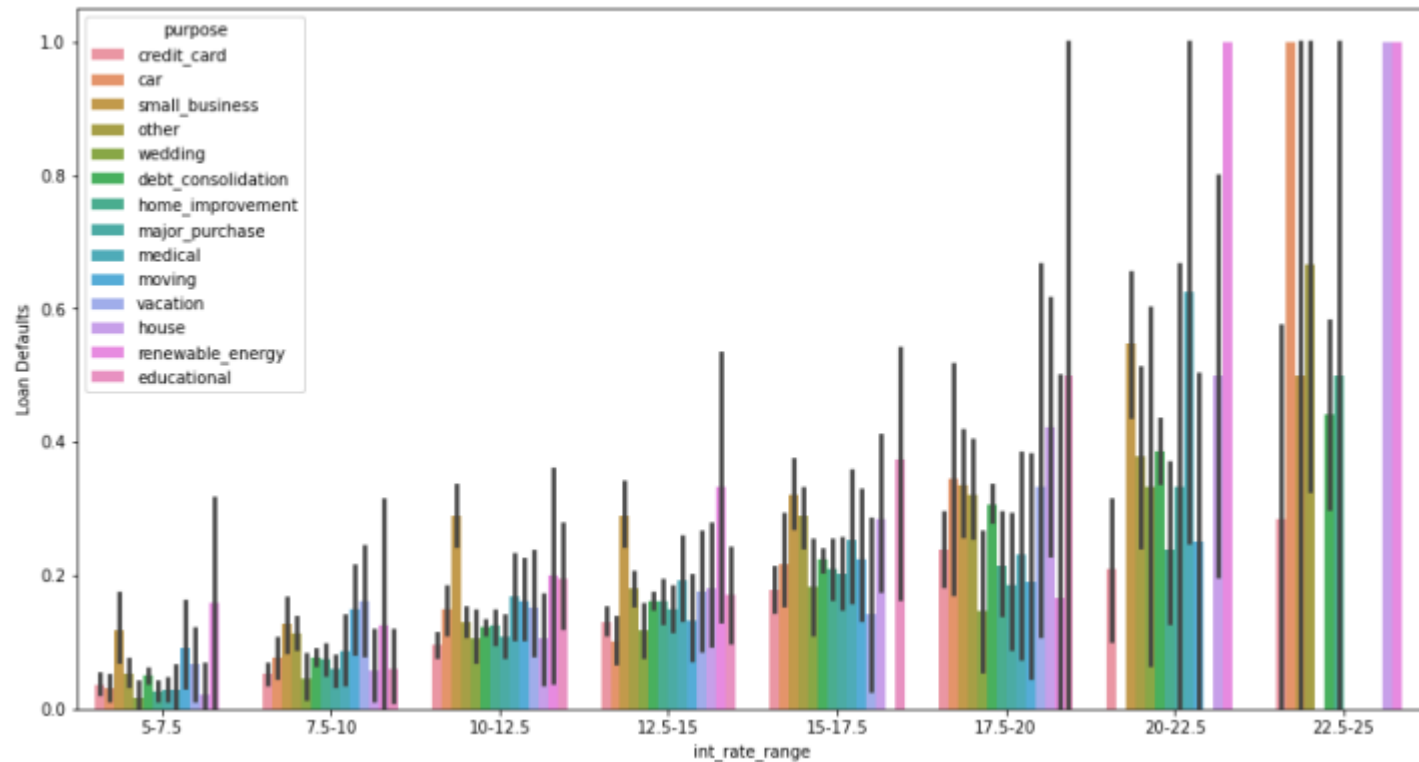
Observation 15 – Annual Income & Purpose

Clearly evident that with increased annual income the likelihood to default decrease across all purposes



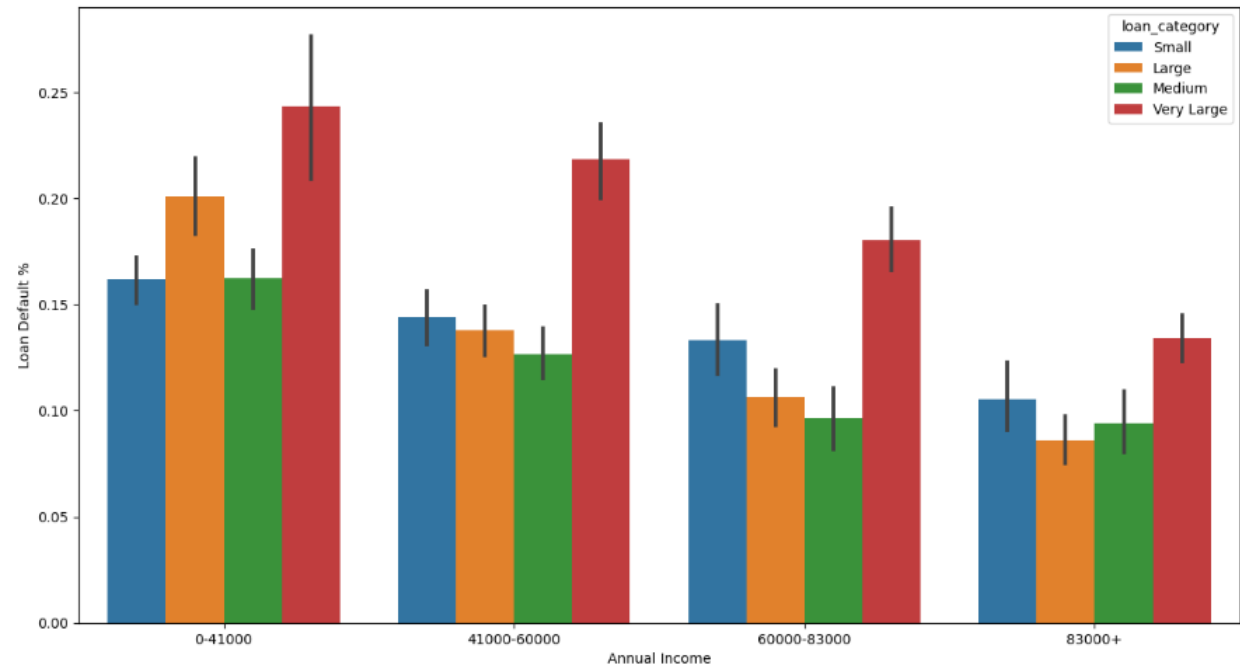
Observation 16 – Interest Rate & Purpose

It comes out that higher the interest rate more likely it is to default cross all purpose



Observation 17 – Annual Income & Funded Loan Amount

It comes out that for income group <41K, the defaults are maximum specifically for Very Large loans



Recommendations

Based on findings from analysis, below are the recommendations to Lending Club.

Following are the key drivers which affects loan default:

1. Loan Term
2. Interest Rate
3. Grade
4. Sub Grade
5. Purpose
6. Loan Amount
7. Annual Income
8. Address State
9. Lending Club/Investors should review applications with enhanced diligence and charge extra risk premium for following:
 - Loan purpose for loan is “Small Business”.
 - Home Ownership is “Others”
 - Loan term is 60 months
 - Lower annual income groups (<75K)
 - Loan amount > 15K