



## LENDING CLUB CASE STUDY

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# Lending Club Case Study

## **Background:**

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.

## **Business Objective:**

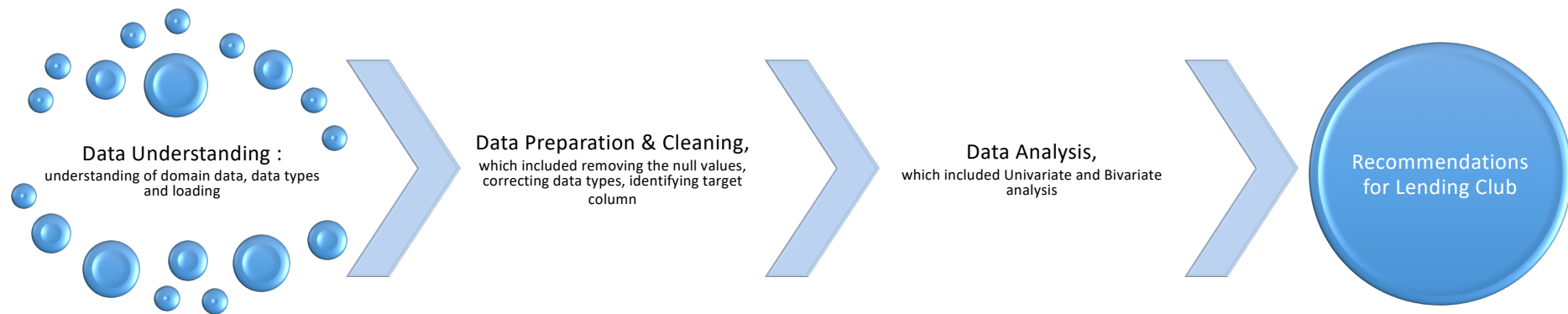
To identify risky loan applicants, so that such loans can be reduced thereby cutting down the amount of credit loss. Identification of such applicants using EDA is the aim of this case study

## **Goals:**

- Understanding of the different variables provided in the data and segregation of those in Demographic, Loan Characteristics and Customer Behaviour.
- To understand the driving factors (or driver variables) behind loan default
- Establishing the correlation between driving factors

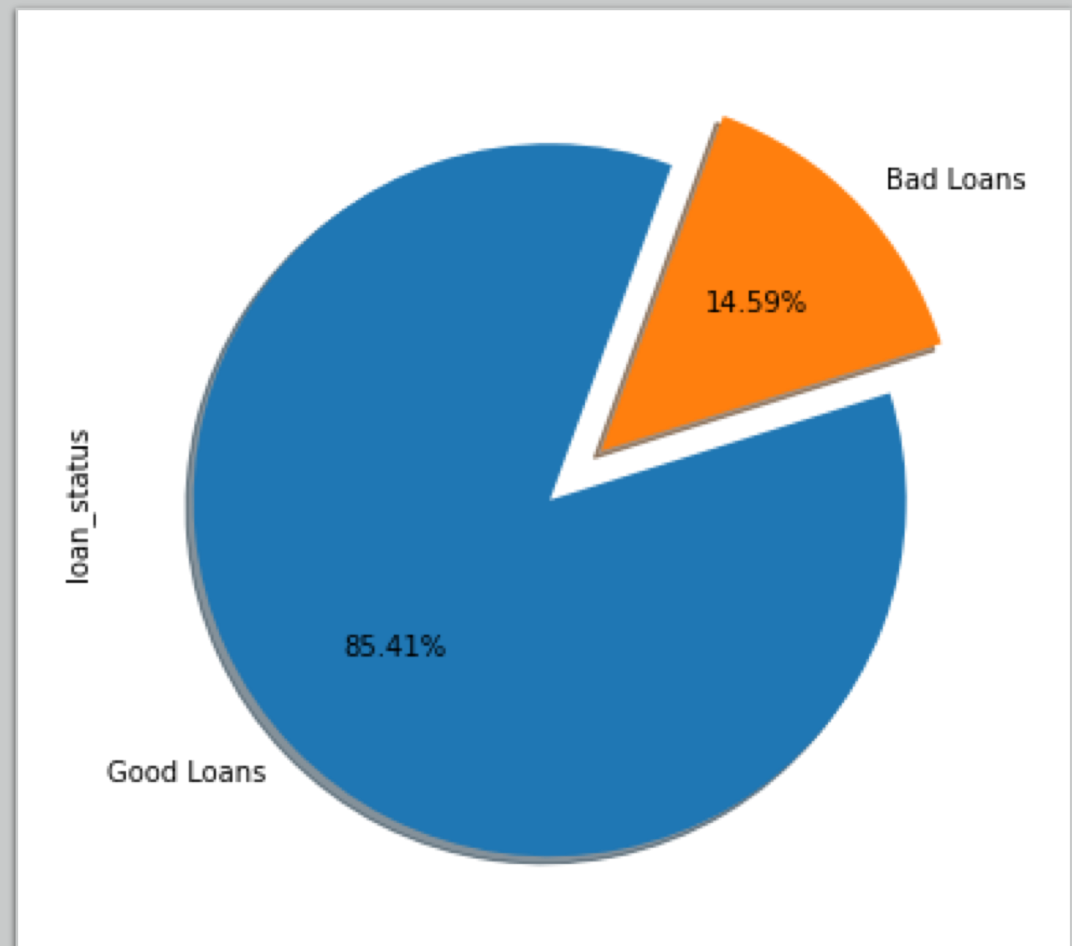


## Analysis Approach





# Data Understanding

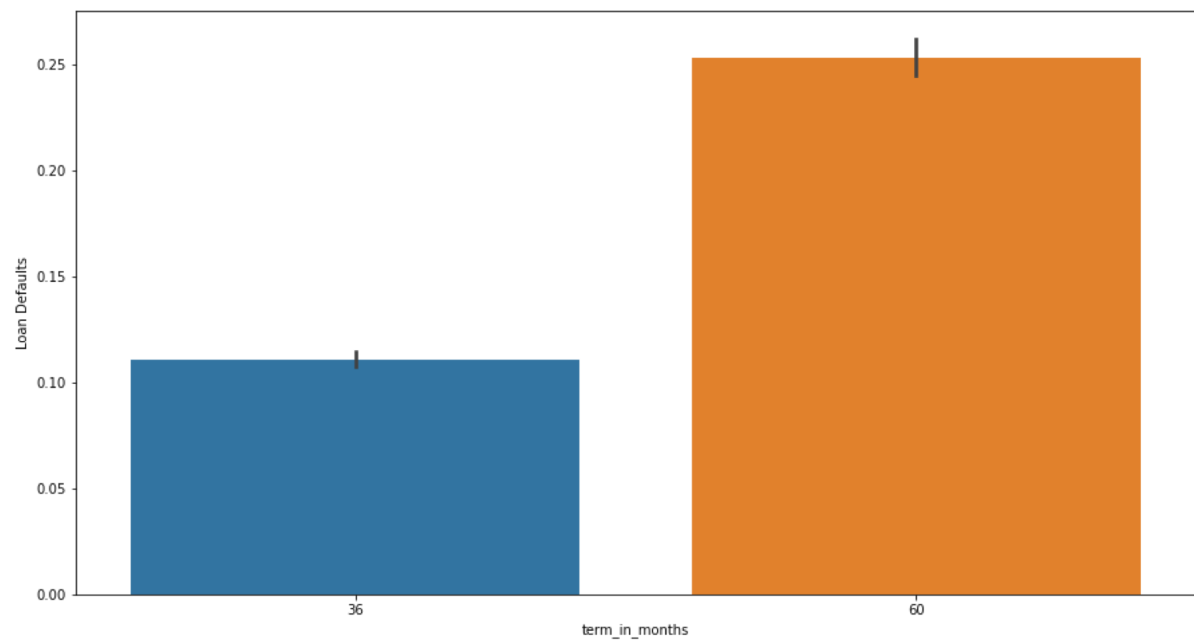




## Observations –Term of Loan

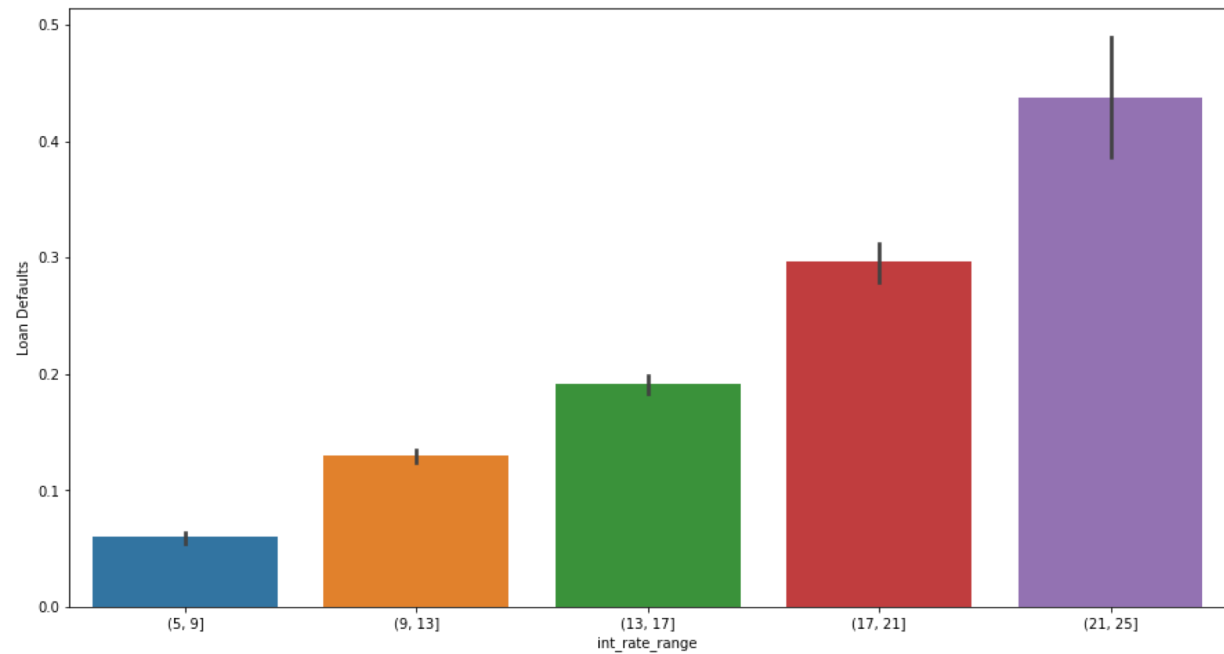
Analysis was carried out on the number of loan defaults from the given data with the different parameters in the data, this resulted in following observations:

1. There are more number of loan defaults among loans with 60 months term period



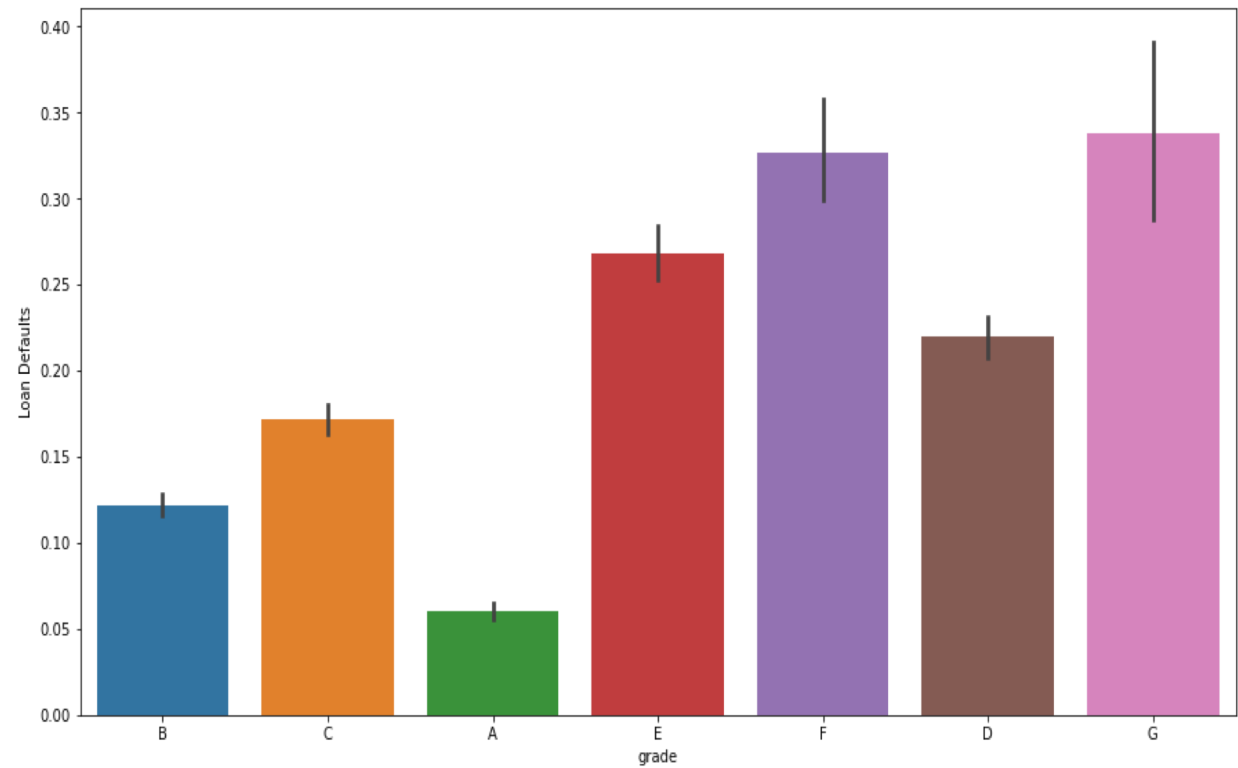
## Observations – Interest Rate

2. There is more percentage of loan defaults with high rate of interest



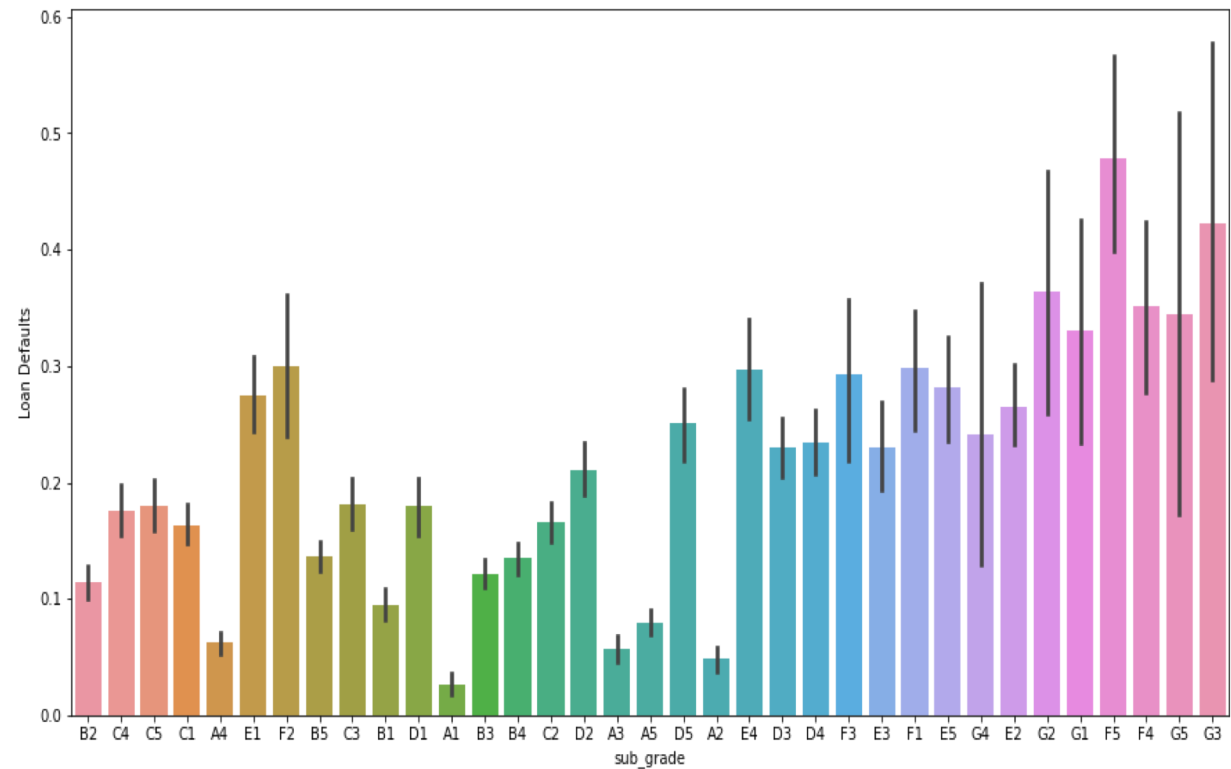
## Observations - Grade

3. The percentage of loan defaulters varies with the Grade and there is more probability of default as the grade changes from A to G



## Observations – Sub Grade

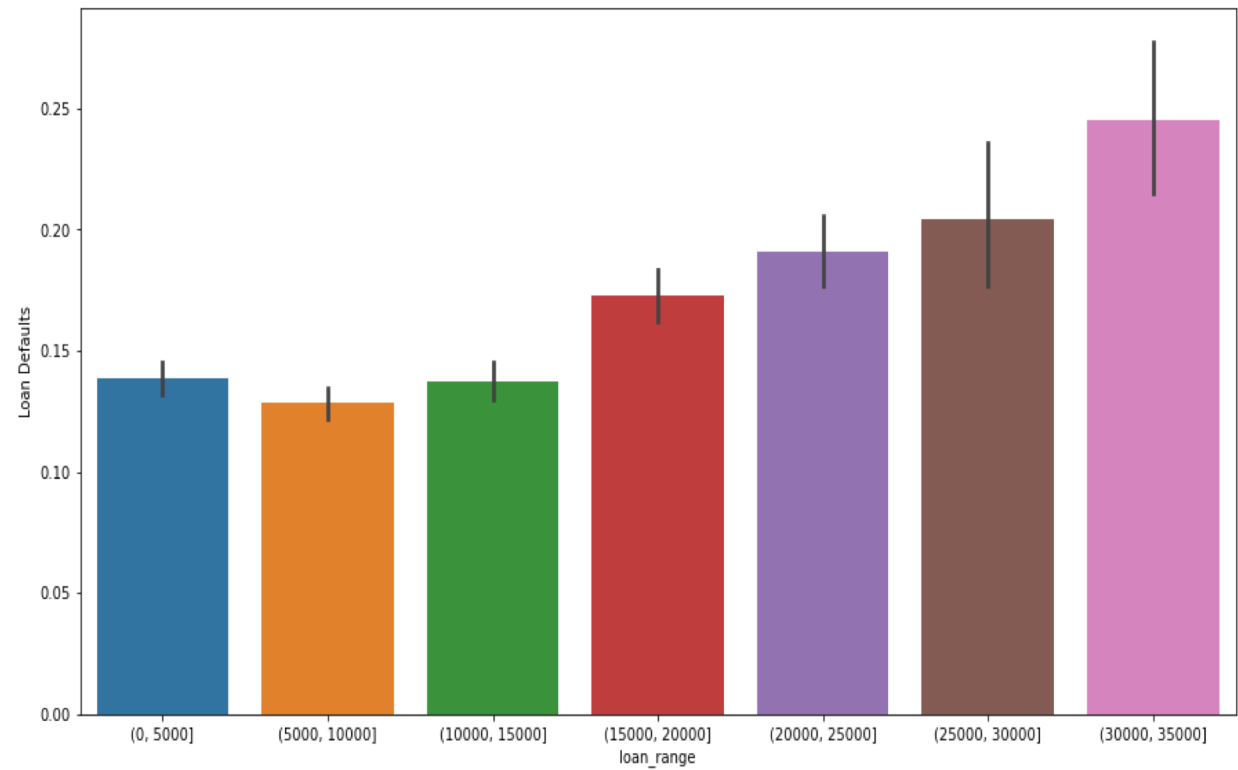
4. The percentage of loan defaulters varies with the Sub Grade and there is more probability of loan default with loan application in Sub Grade 'F5' followed by 'G3'





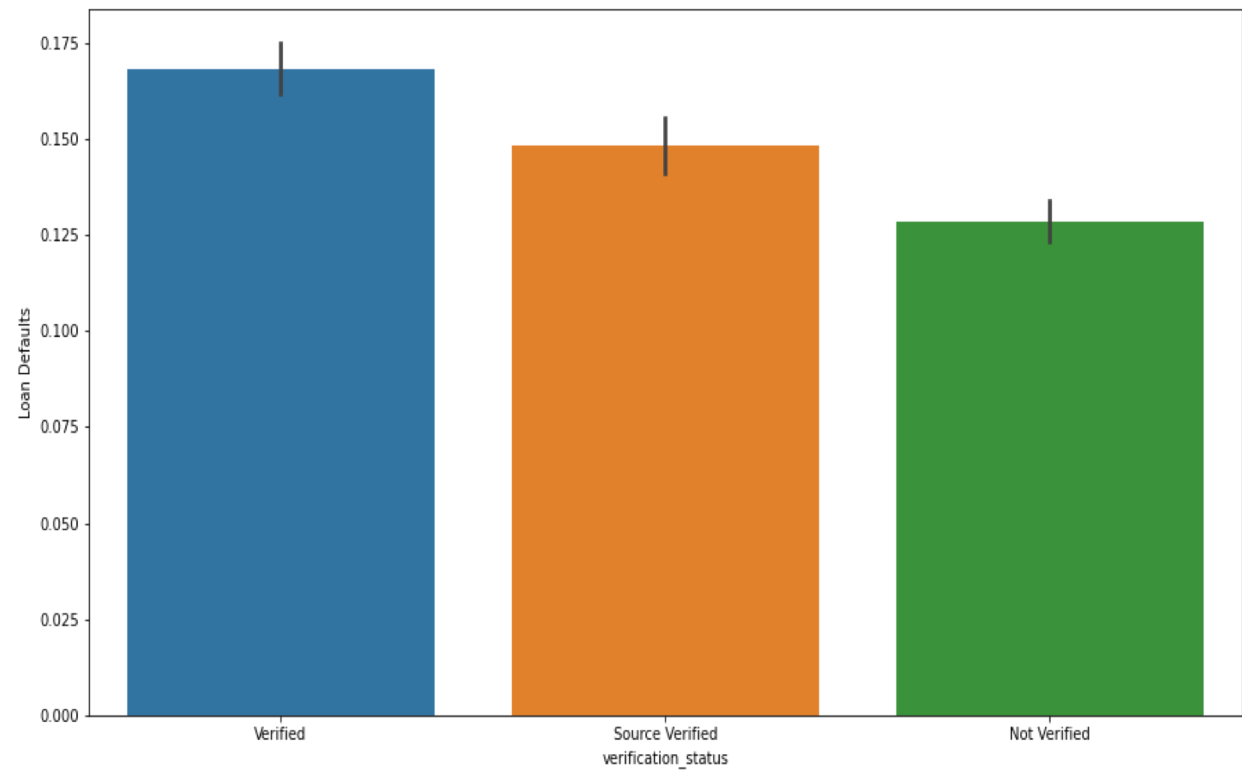
## Observations – Loan Amount

5. It's observed that the loan default percentage will increase with the increase in the loan amount



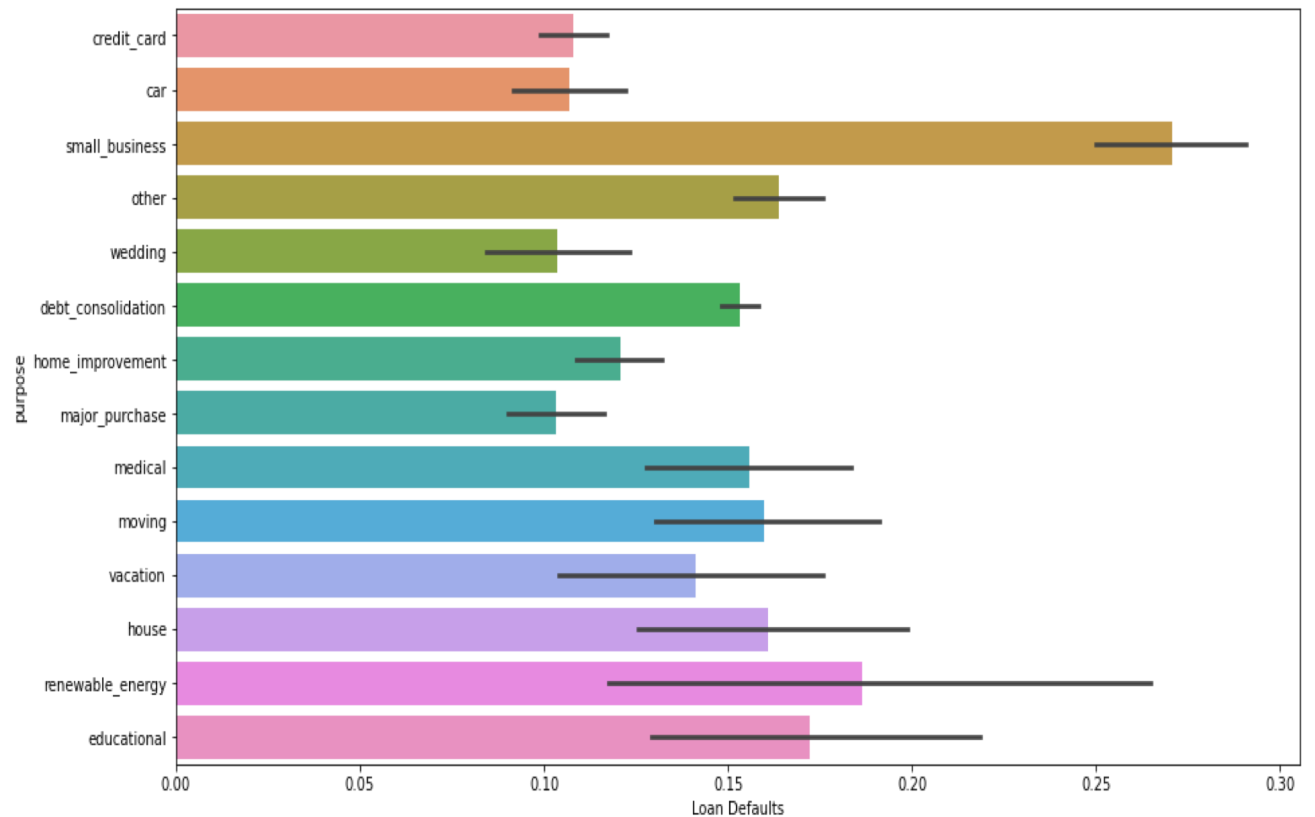
## Observations – Verification Status

6. This suggests that there are loan defaults even among the people whose source of income is verified



## Observations – Purpose of Loan

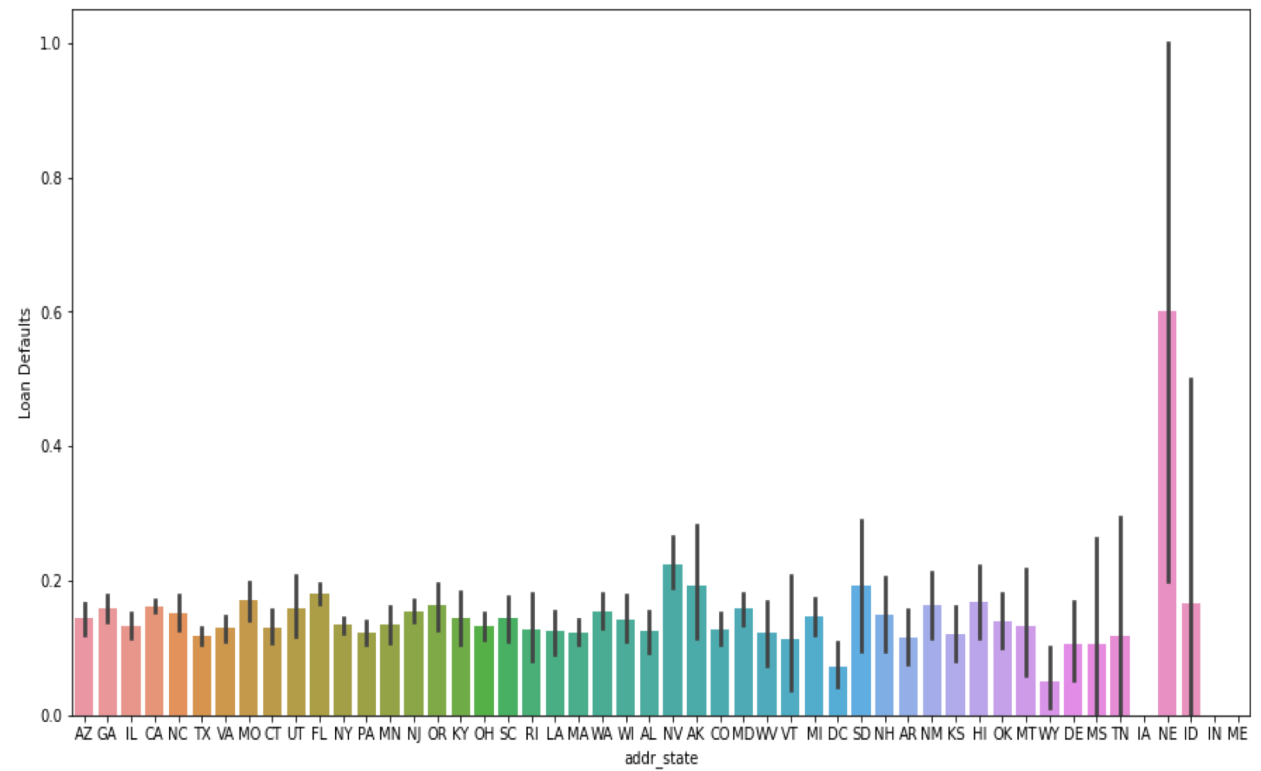
7. This suggests that there are maximum loan defaults where purpose is small business





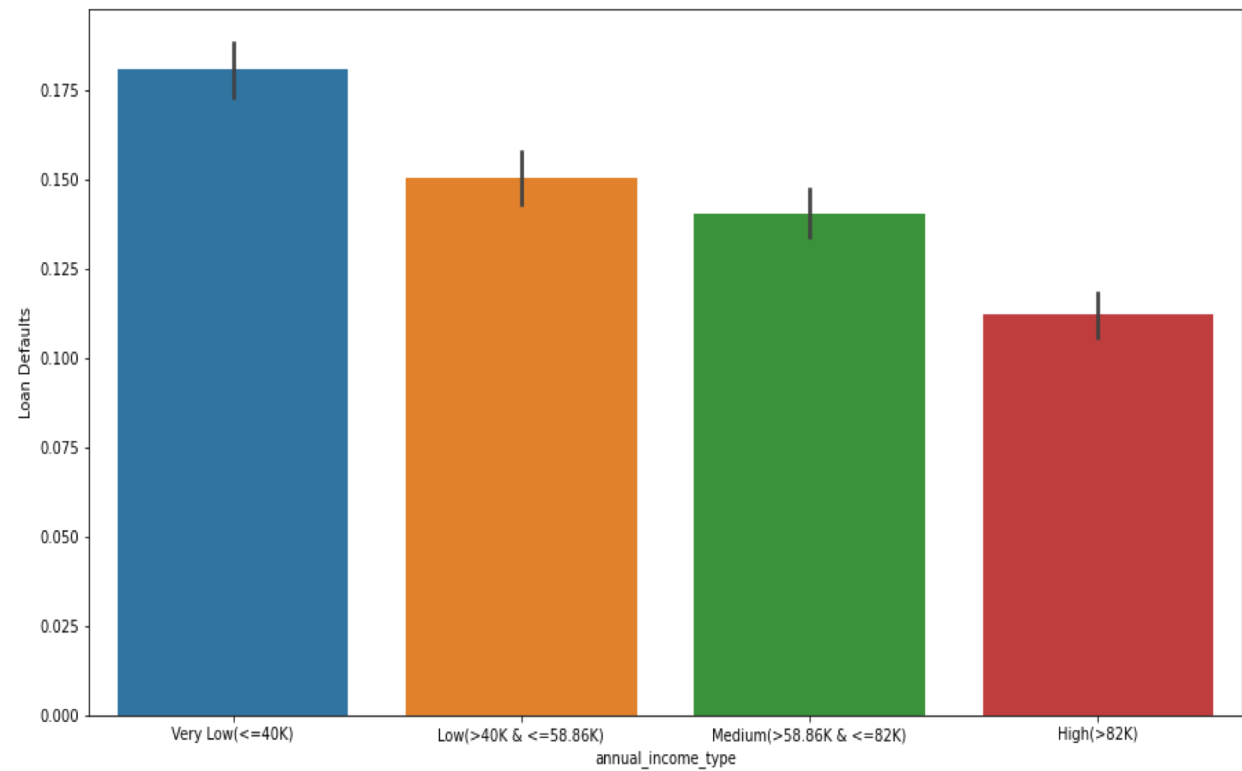
## Observations - State

8. This suggests that there are maximum loan defaults where the state is NE



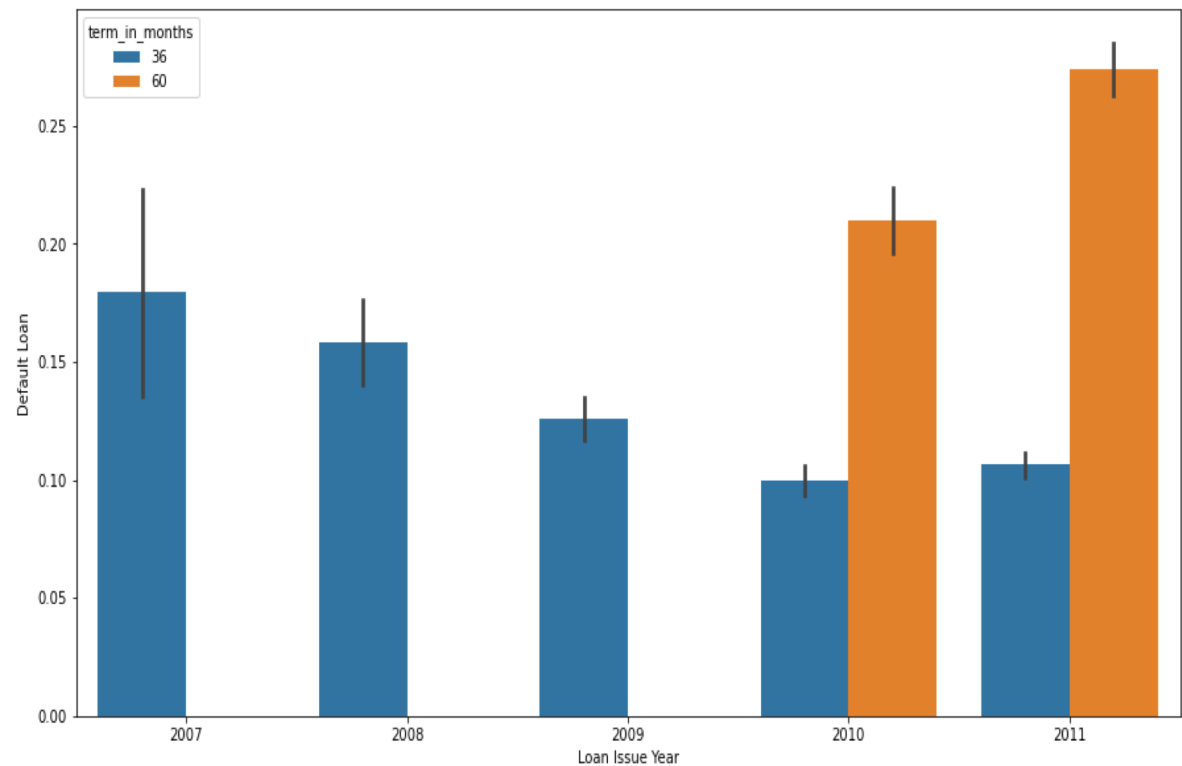
## Observations – Annual Income

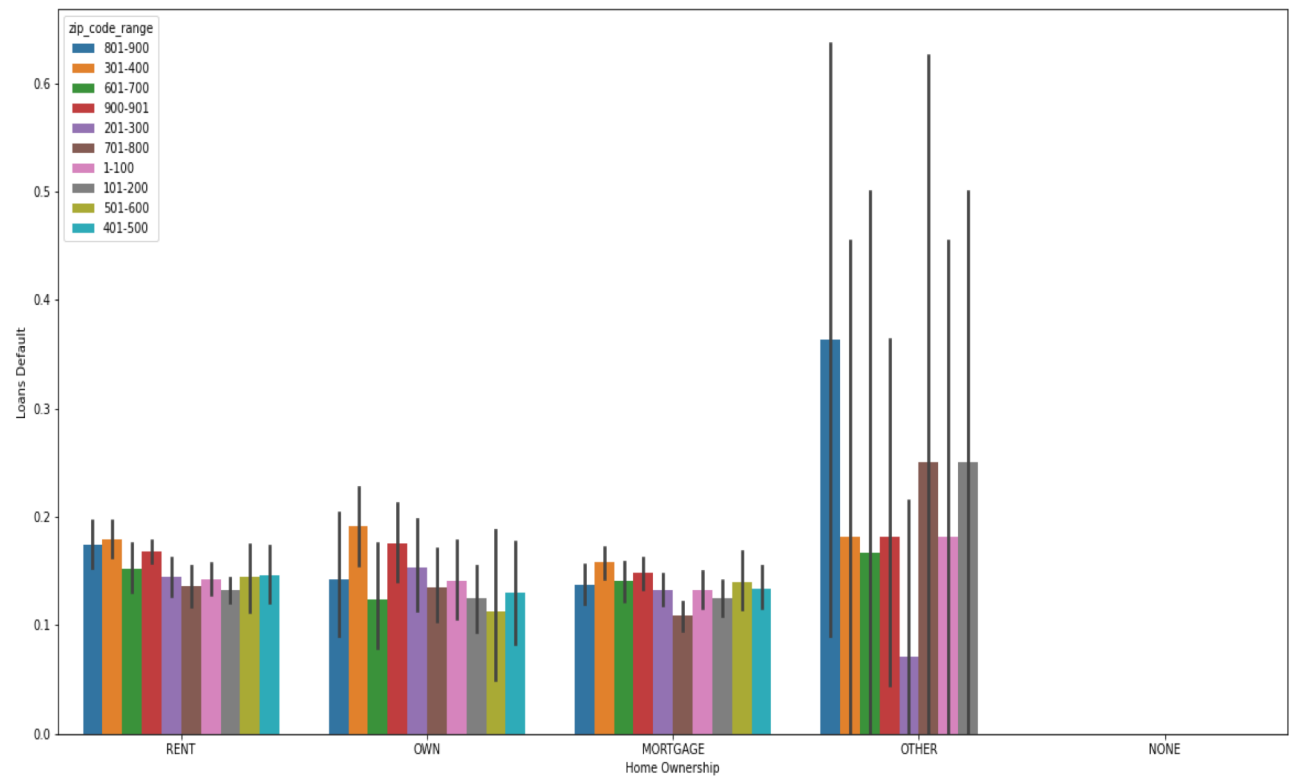
9. The number of defaults are high in case of income less than 40k



## Observations – Term and Issue Year

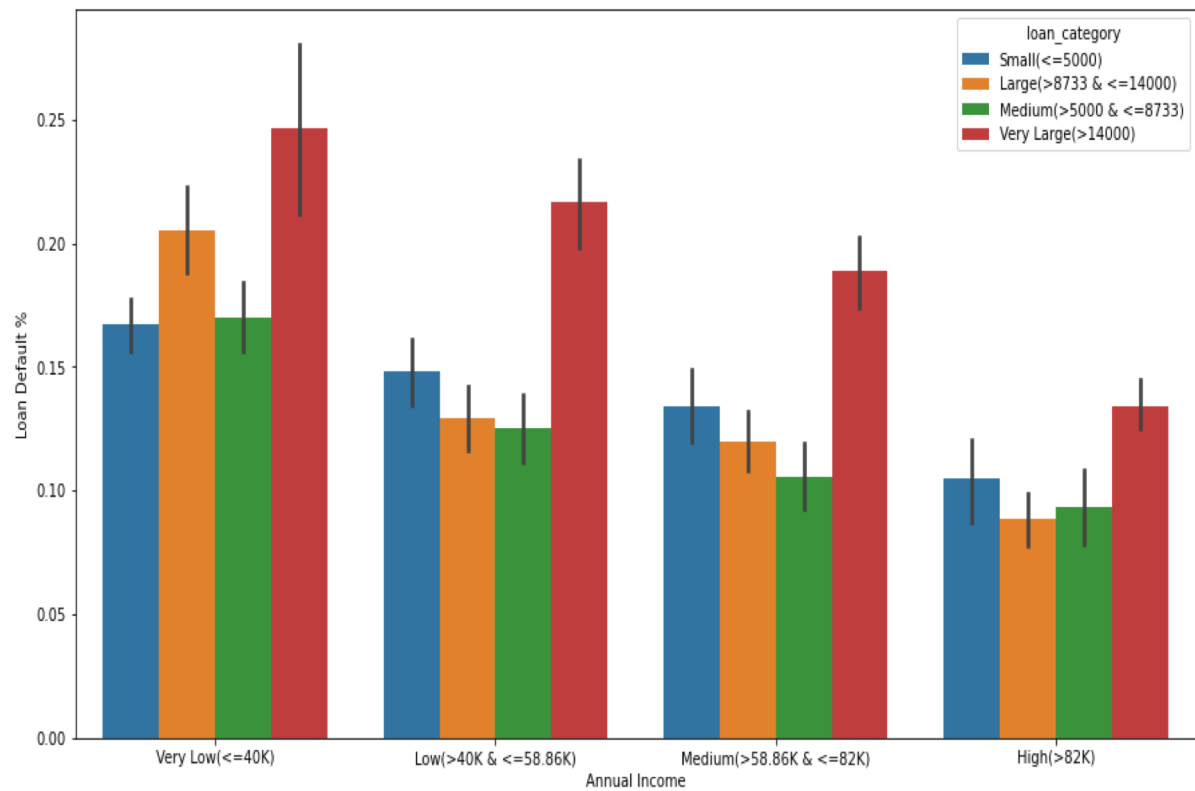
10. This suggests that loan default rate decreased for the term of 36 months from the year 2007 to 2010, while with the introduction of 60 months loan term, the loan defaults got increased





## Observations – Annual Income & Loan Amount

12. This suggests that there is high percentage of Loan defaults in income category <40k and with large loan amount







## Recommendations

Based on the result of the analysis, following are the recommendations to Lending Club:

- ✓ The various drivers which affect the Loan default percentage are:
  - ❖ Term
  - ❖ Purpose
  - ❖ Grade
  - ❖ Sub Grade
  - ❖ Rate of Interest
  - ❖ Annual Income
  - ❖ Home Ownership
  - ❖ Addr\_state
  - ❖ Zip Code
  - ❖ Funding Amount Inv & Loan Amount
- ✓ The Loan application with 60 months term has the high probability to default the loan. Hence, it is recommended to avoid loans with 60 months time frame.
- ✓ Lending Club should scrutinize the loan applications thoroughly where the purpose of the loan is 'Small business'.
- ✓ Applications where Home Ownership is mentioned as 'Others' should be scrutinize properly.
- ✓ Loans should be avoided to the zip codes with values as 999,669,833,094,373,663,385,689, as these have 100% Loan default percentage.
- ✓ Lending Club should take into consideration Annual Income and loan amount while deciding the application, Loan amount>14k should be avoided to people having annual income<=82k