Lending Club Case Study

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Problem Statement

Identify the **driving factors (or driver variables)** behind loan default, i.e., the variables which are strong indicators of default. The company can utilize this knowledge for its portfolio and risk assessment.

Important Driver Variables

- Term
- Loan_Status
- Interest Rates
- Payment_Received_principal
- purpose

Data understanding

- If **annual_inc** is higher than **loan_amnt** then it would be fine to proceed with loan procedure
- If **verification_status** is **'not verified'** then **loan_amnt** can be reduced to some more extent
- **installment** & **last_pymnt_amnt** are aligned with any month gives more clarity on whether the borrower is fulfilling the criteria of not being Charged-Off
- **annual_inc** also makes impact on the number of installments would be easily paid
- if **delinq_2years** Yes then please consider giving small amount instead of big amount

Data Cleaning and Manipulation

- Check whether is there any NaN values there is annual_inc column
- Check whether is there any NaN values there is loan_amnt column
- Convert Below Params from Int64 to Float
  - **loan_amnt**
  - **funded_amnt**
- **int_rate** param should be replaced by same with removal of '%' from its string
- Param **'term'** should be cleaned with removal of months from its value
- New Variables Need to be derived from **issue_d & last_pymnt_d** columns
  - such as issue_day, issue_month, issue_year
  - such as last_pymnt_day, last_pymnt_month, last_pymnt_year
- Remove outliers from data such as NaN from columns.

Data Analysis (1/4)

- Borrowers who have not paid fully Payment against the loan funded amount they might be in the shadow region of Defaulters or being Charged-Off
- Term Vs Last Payment Date – if last payment is out of the tenure or due date then it would high chance that borrower being Charged-Off
- If loan status is "Charged Off" for previous loans in database, then no new loan should be sanctioned.
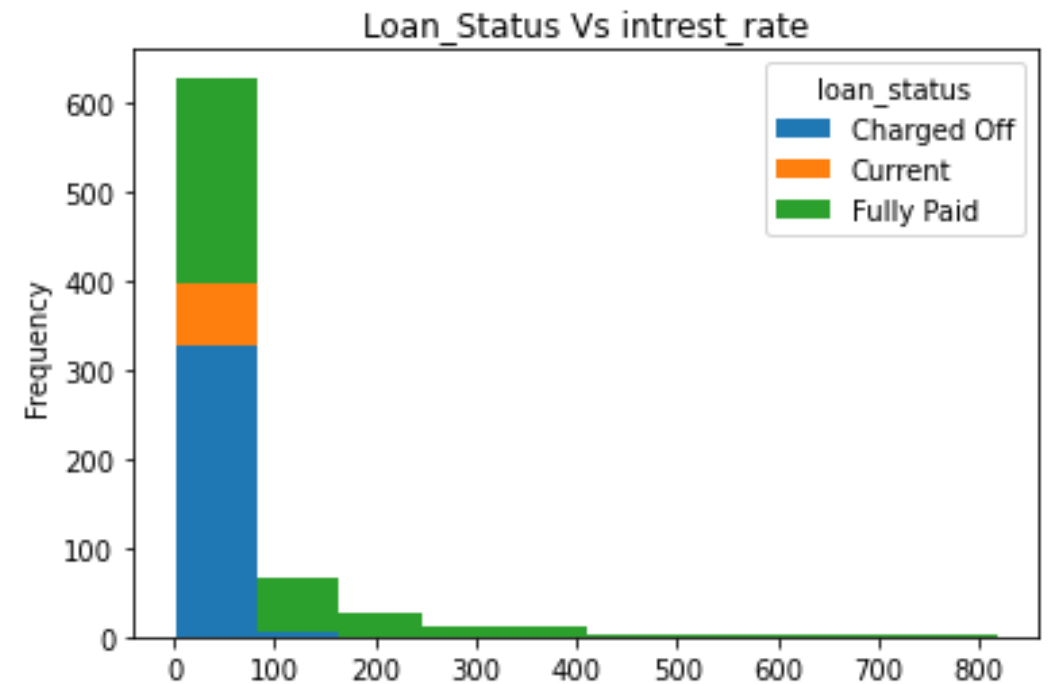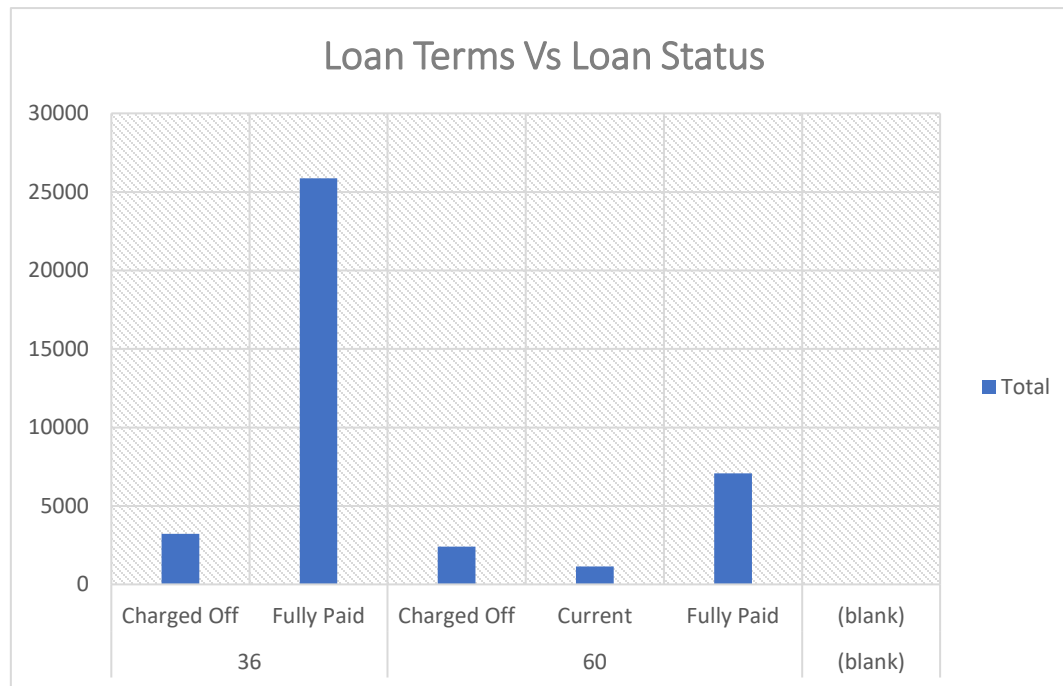
Data Analysis (2/4)

- **Bivariate Analysis**
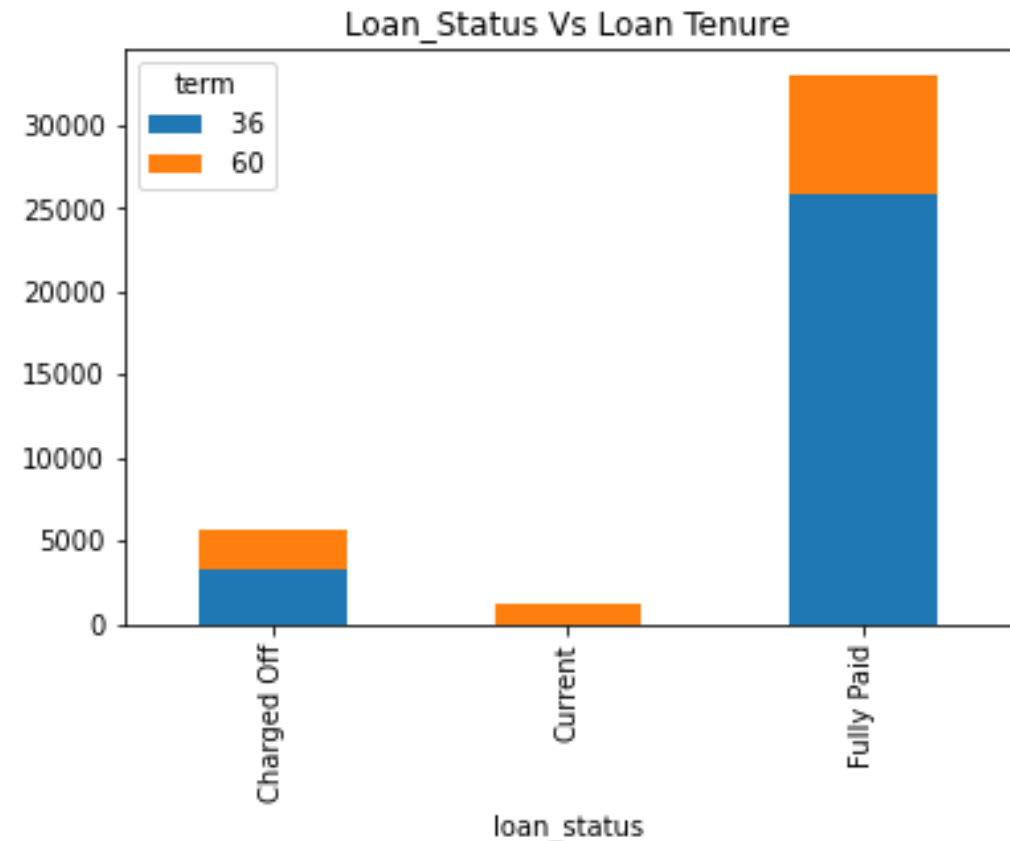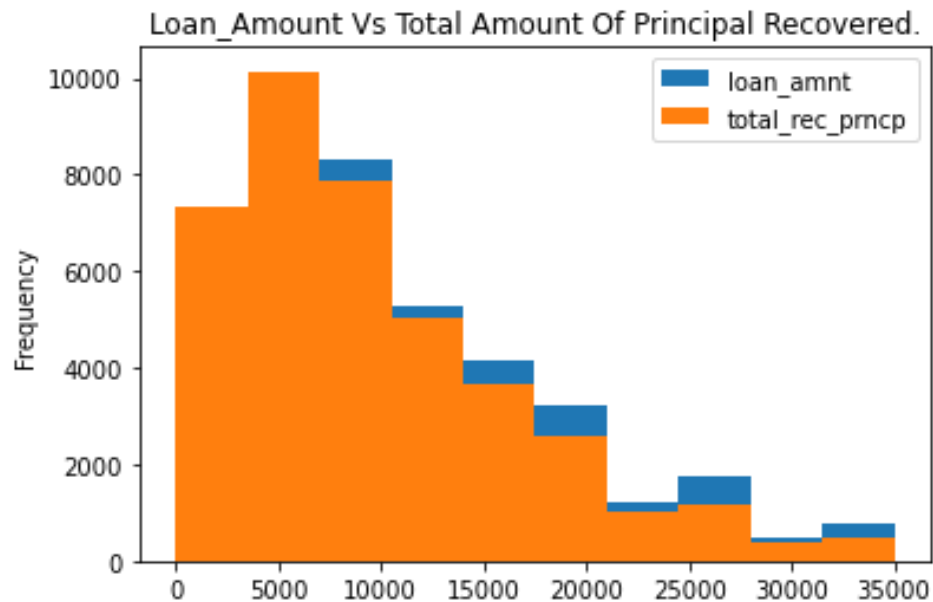- *Loan amount Vs Payment Received in Total Payment Received*
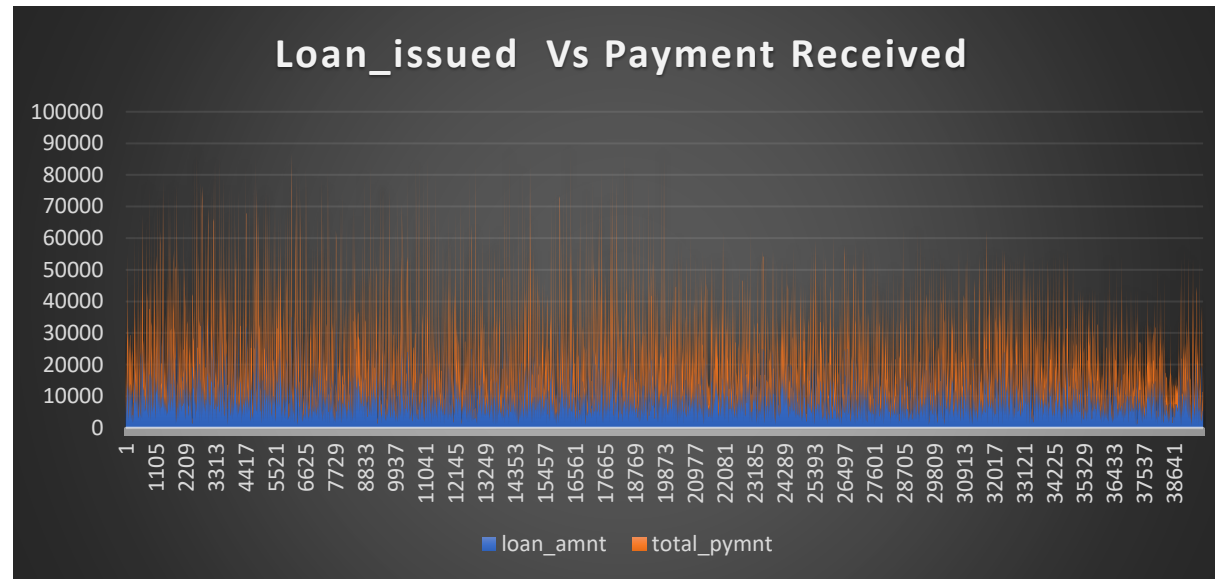
Data Analysis (3/4)

- *If the tenure is 36 months, then it is high chance that loan will be fully paid rather than 60 months*

Data Analysis (4/4)

- *Borrowers who have not paid fully Payment against the loan funded amount they might be in the shadow region of Defaulters or being Charged-Off*

Conclusion

- **Below driving factors (or driver variables)** are strong indicators of default. The company can utilize this knowledge for its portfolio and risk assessment.
    - Term
    - Loan_Status
    - Payment_Received_principal
    - Interest Rates
    - Purpose