Smart Lending Case Study

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Background – Smart Lending Case Study

- Smart Lending is the largest peer-to-peer marketplace connecting borrowers with lenders. Borrowers apply through an online platform where they are assigned an internal score.
- Lenders decide

1) whether to lend
2) The terms of loan such as interest rate, monthly instalment, tenure etc

- Popular products offered are credit card loans, debt consolidation loans, house loans, car loans etc.

Business Objective

To identify variables which are strong indicators of default and potentially use the insights in approval / rejection decision making so as to grow strongly.

Data Insights

Types of variables:

- Customer (applicant) demographic
- Loan related information & characteristics
- Customer behavior (Whether the loan is granted)

Customer's Demographics
Employement Length
Employement title
Annual Income
Zip Code
Description

Loan Information & Characteristics
Loan Amount
Funded Amount
Funded Amount Investment
Interest Rate
Loan Status
Laon Grade

Customer Behaviour variables
Delinquency year -2
earliest credit line
Revolving balance
Recoveries
Application type
Loan purpose

Steps Followed

- Gather data for the analysis.
- Cleaning and Formatting the data for readability.
- Extrapolating the Derived Metrics.
- Filtering out the outliers based on Annual Income.
- Filtering data Set based on Loan Status.
- Performing Univariate and Bivariate analysis on the Data.
- Plotting the results of Analysis and finding the Root of the Issue.

Assumptions

- Following assumptions were made:

a. Current loans have been ignored as they are still not completed.

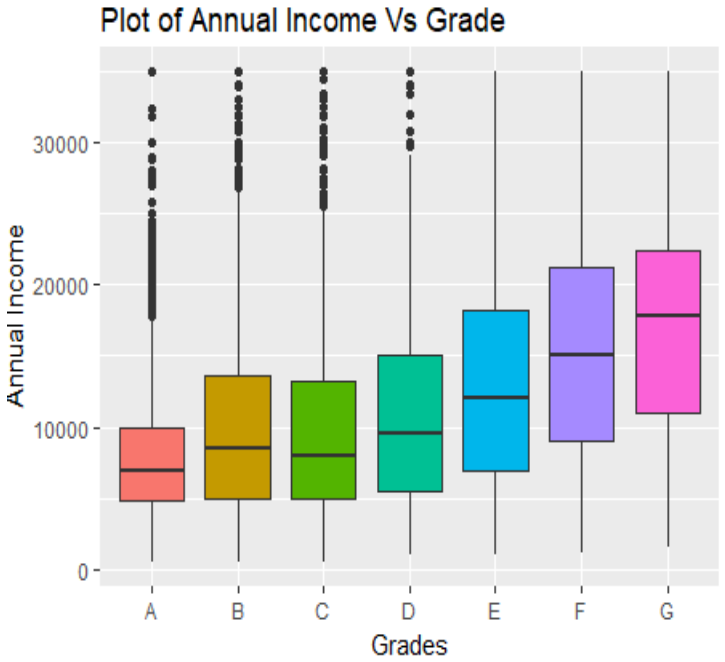
b. Outliers (Based on Annual Income) have been ignored during analysis.

Tools Used :

- Rstudio is used for data cleansing, modelling, analysis and plotting.
- Tableau is also used for plotting the results.

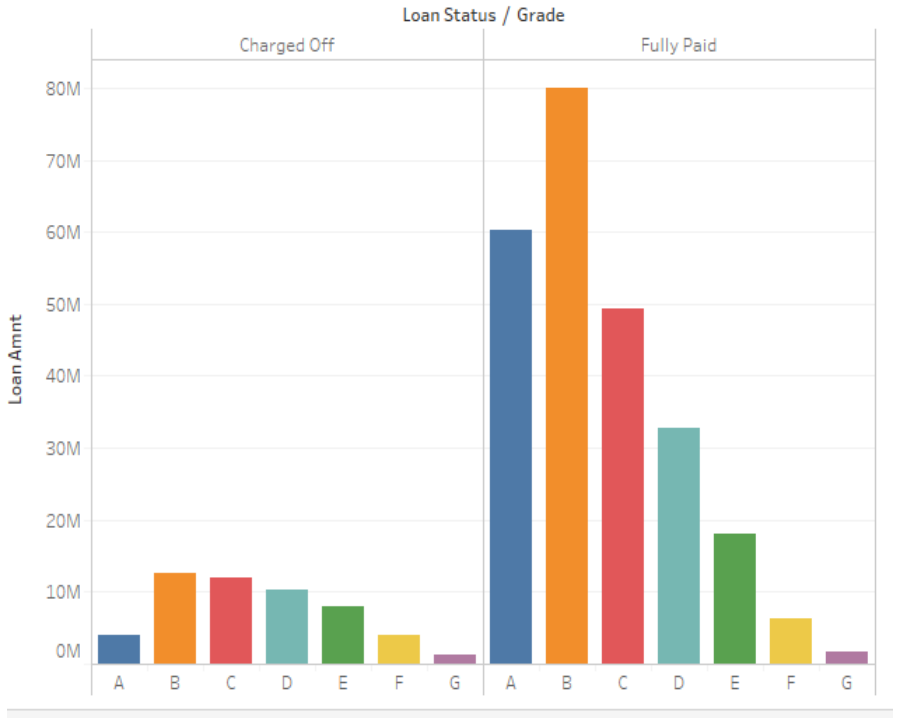
Plots: Annual Income vs Grade

- The range of the incomes is almost same across all the grades.
- It is a little more for grades E,F and G.



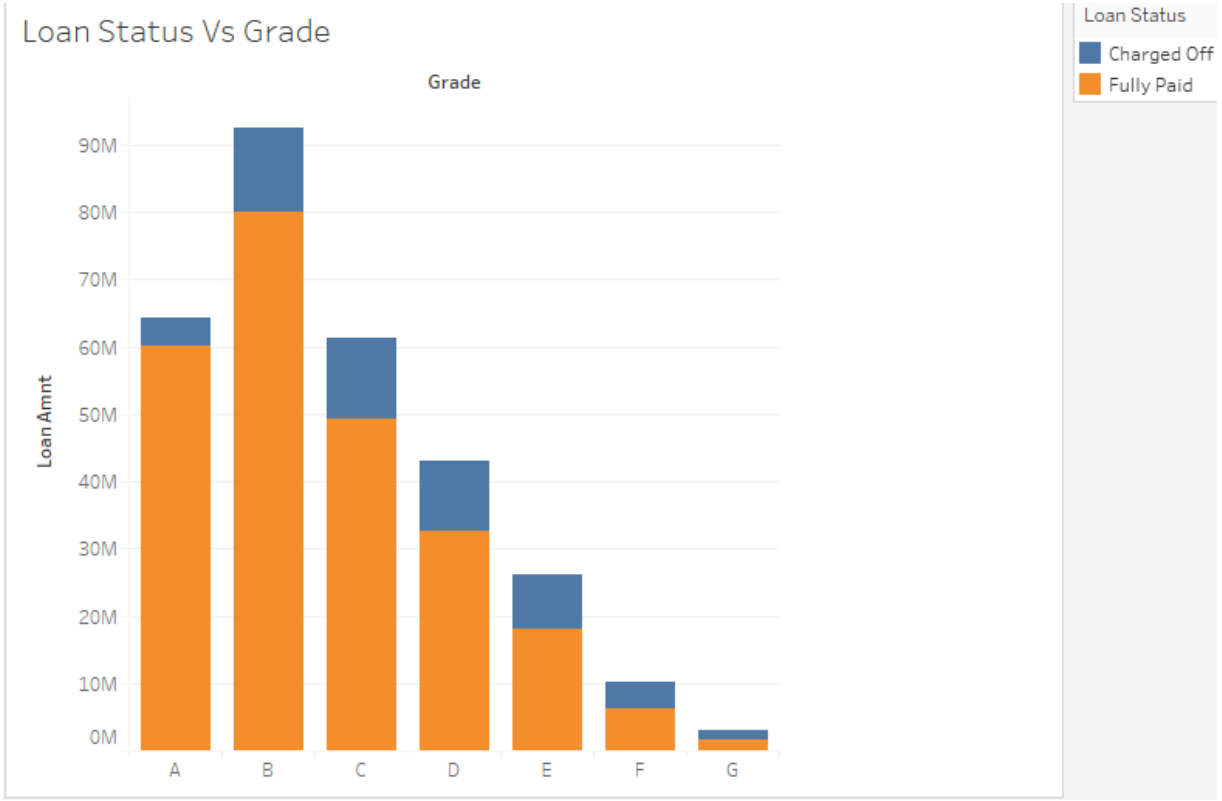
Loan amount vs Loan Status/Grade

- This shows the grades from D to G follow a decreasing
- trend for both Default and Fully paid.



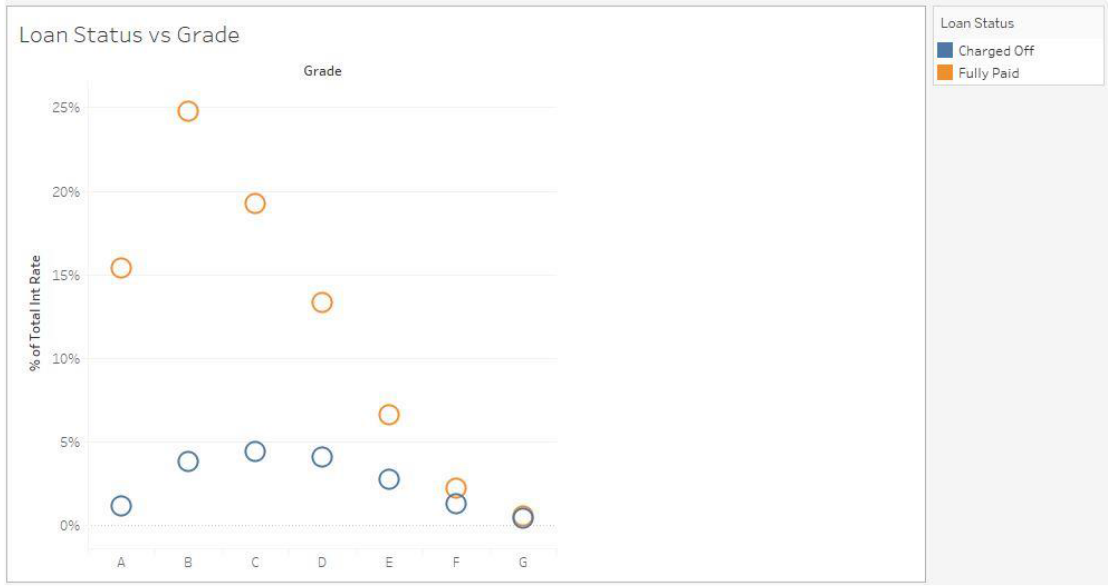
Loan Status vs Grade

- The graph clearly shows in percentages for the contribution in both charged off and Fully paid.
- The percentage of contribution gap is closing from grades C to G.



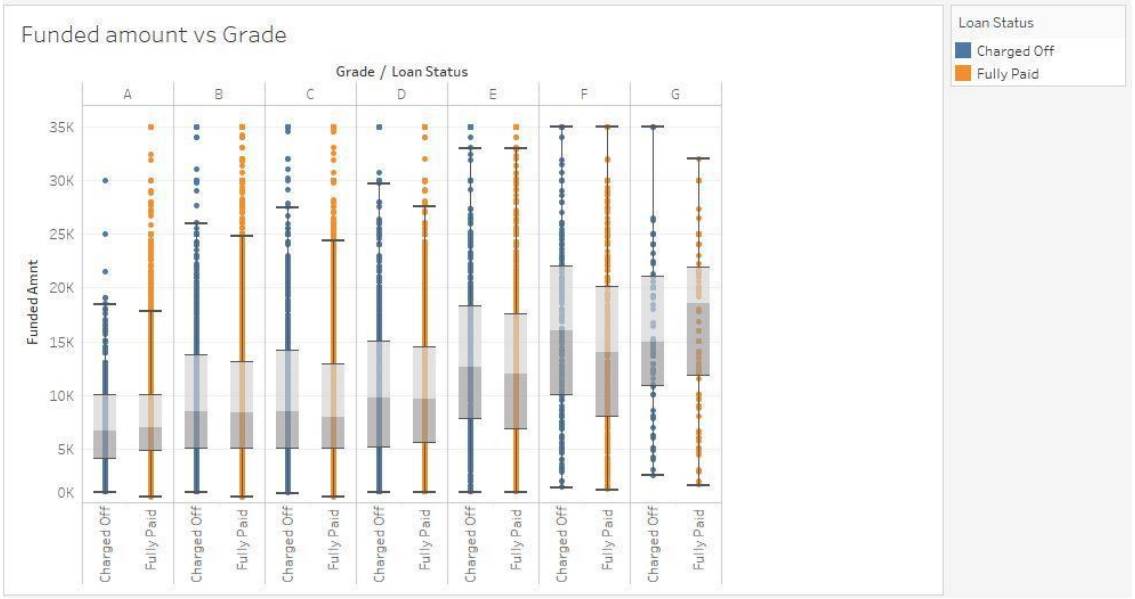
Loan Status vs Grade

- The graph clearly signifies the closing gap between the Charged off and Fully paid statuses across all the grades.
- Hence, particularly for grades D,E,F and G , it is better if loans are lent with caution.



Funded amount vs Grade

- This graph shows that the amount of defaulters are more in the grades from E to G.
- The pattern is very similar where the grades from D to G are less performing grades for the bank.



Loan amount vs Verification

- We can see here that the number of defaults for source verified and verified are high in number.
- We need to investigate whether the documents have been correctly identified and verified before the loan is lent.

Conclusion

- After examining annual income and grades, we found that all grades have almost similar distribution.
- *Annual Income, interest rate* and *verification* have bearing on whether an loan will become fully paid or become charged off. Hence, these parameters need to be critically monitored.
- In the current disbursal, from grade D to grade G, the percentage of defaults are more. Grades also play an important role in loan disbursal and repayment and can be reference from current data to make future decisions.
- Target based/ last minute loan disbursals should be avoided.

Recommendation

- Customer should be classified clearly based on their income, frequency of application, purpose of use, loan duration and intended use based on this interest rate and disbursed amount should be calculated.
- The process of income verification should be more accurate as it is an important parameter to control defaults.