

## **BAD LOAN**

The main objective of this document is to identify factors that make a Good/Bad Loan. Good Loan is a loan that is repaid while a Bad Loan is not.

The steps taken to narrow down the features that have causal effect involved :

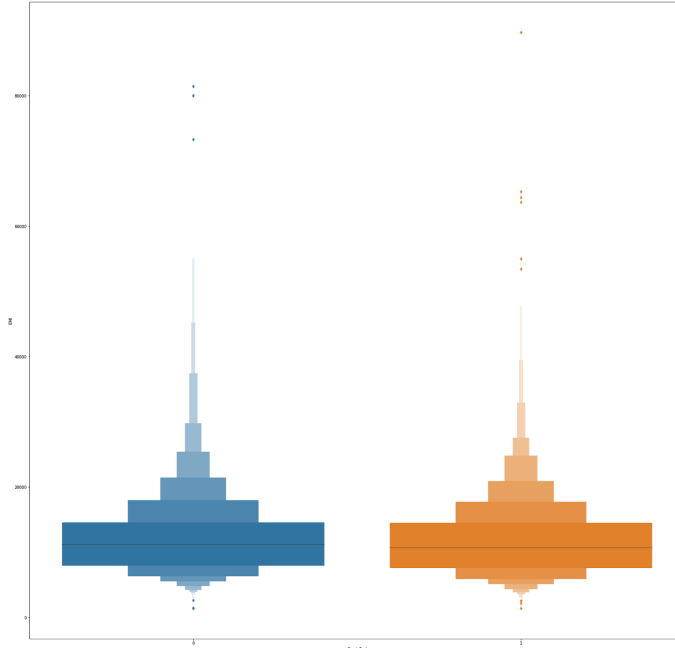
1. Using intuition to make assumptions about the feature importance.
2. Quantitatively validate these.

**Summary** : If the features like EMI / Loan amount is high or tenure is short, such loans will turn Bad. If the customer has a stable business/ high FOIR /High Margin / income is high and has high location stability with low expenditure the loan will be Good.

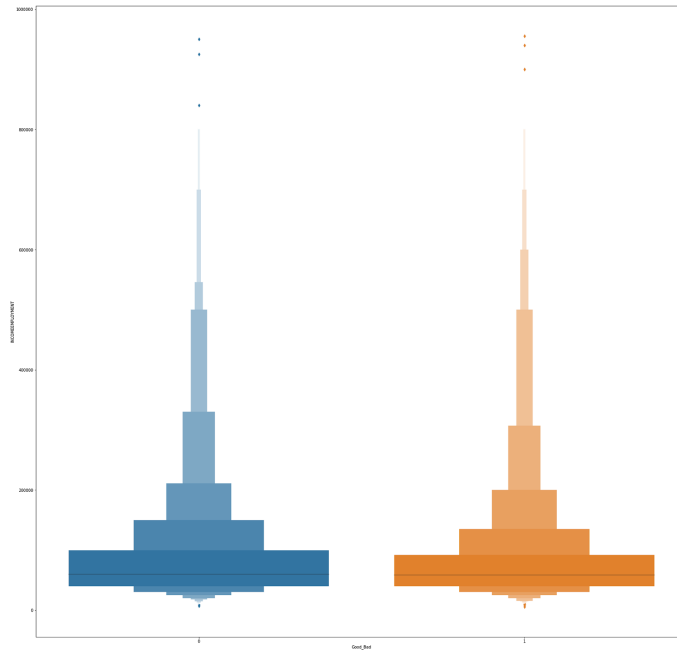
**Note** : that all the images have been shrunk so as to not overwhelm the final receiver. Legends : Blue - Bad Loan, Orange - Good Loan.

Based on the EDA performed the following features have direct influence on the Loan Type:

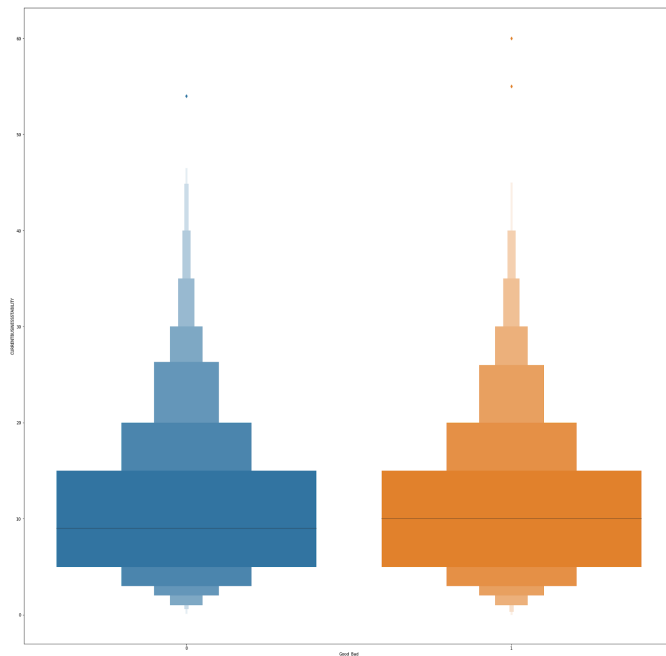
- **EMI** : Looking at the below plot we can conclude that Bad Loans tend to have higher EMI's than Good Loans.



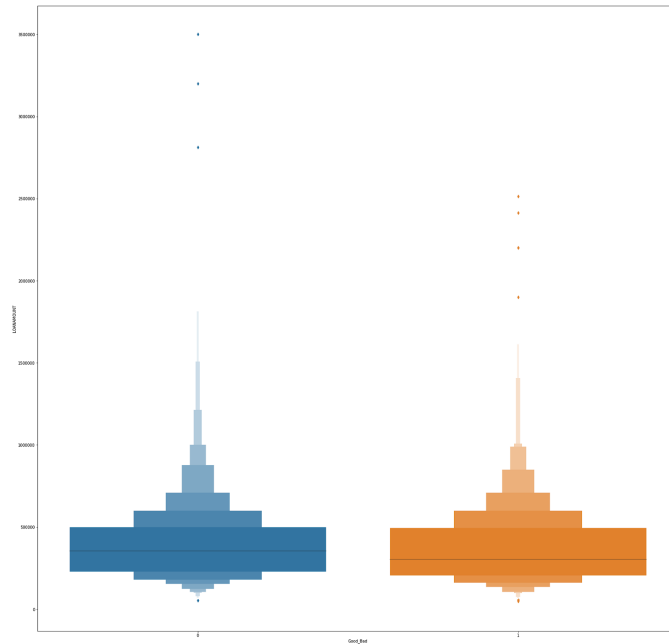
- **INCOMEEMPLOYEMENT** : The Loans that tend to go Bad have lower Income through employment as seen from the below distribution.



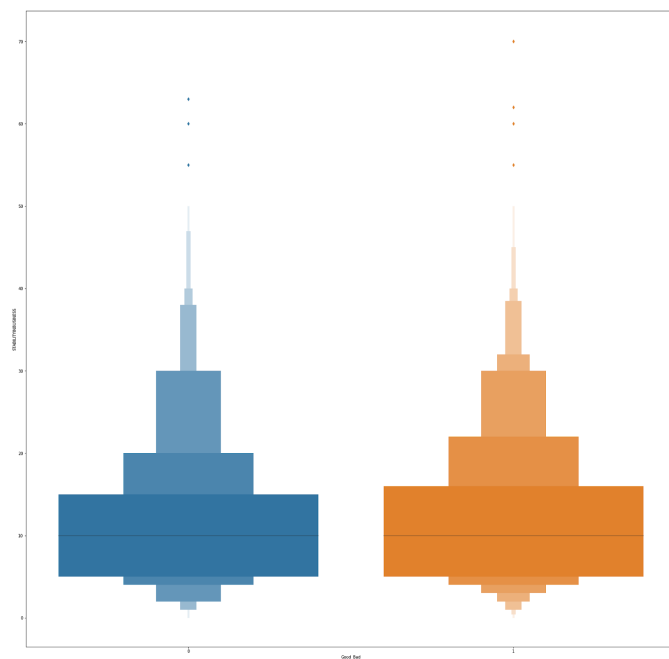
- **CURRENTBUSINESSSTABILITY** : Good Loan holders tend to have have businesses that have higher stability as seen from the below screenshot.



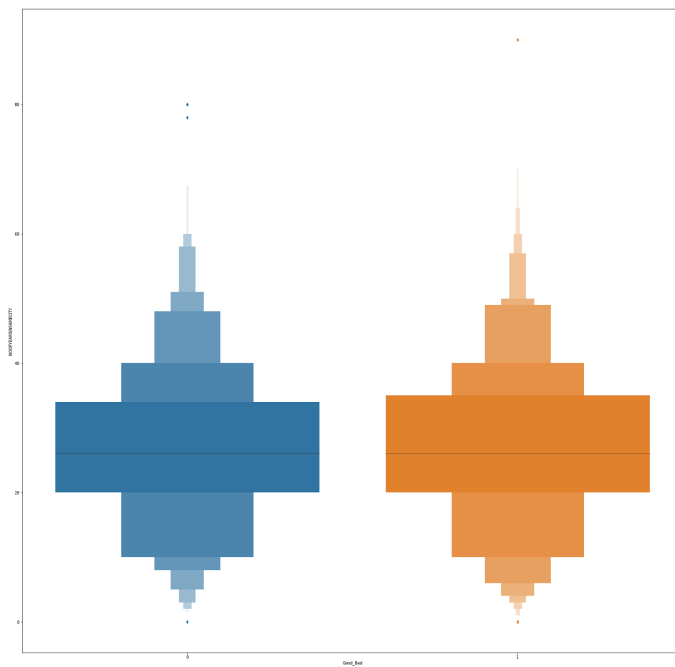
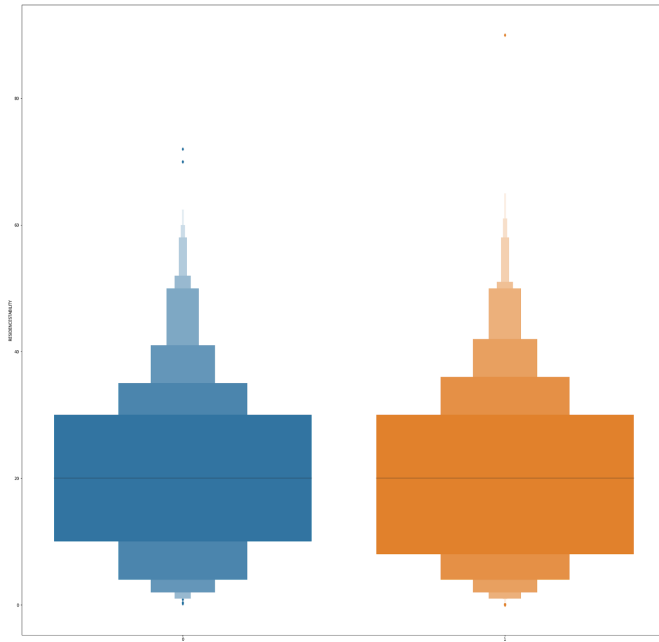
- **LOANAMOUNT** : If the loan amount is high then the loan tends to go BAD as seen from the below distribution.



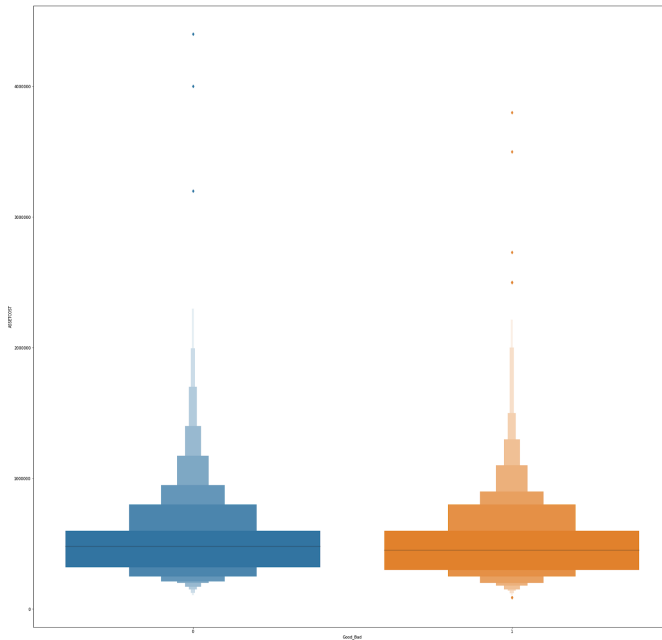
- **STABILITYINBUSINESS** : Good loans have higher business stability than Bad loans as seen from the below distribution.



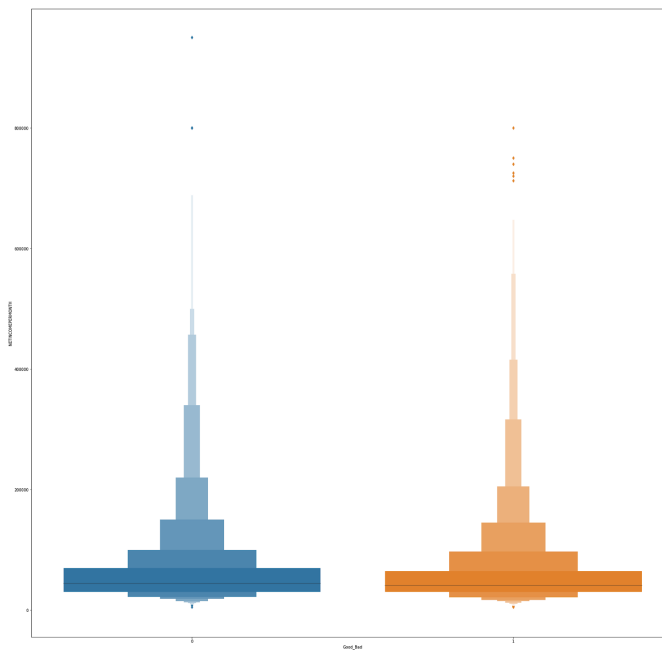
- Location : **RESIDENCESTABILITY & NOOFYEARSINSAMECITY** : If the two are high then it tends to be a Good Loan.

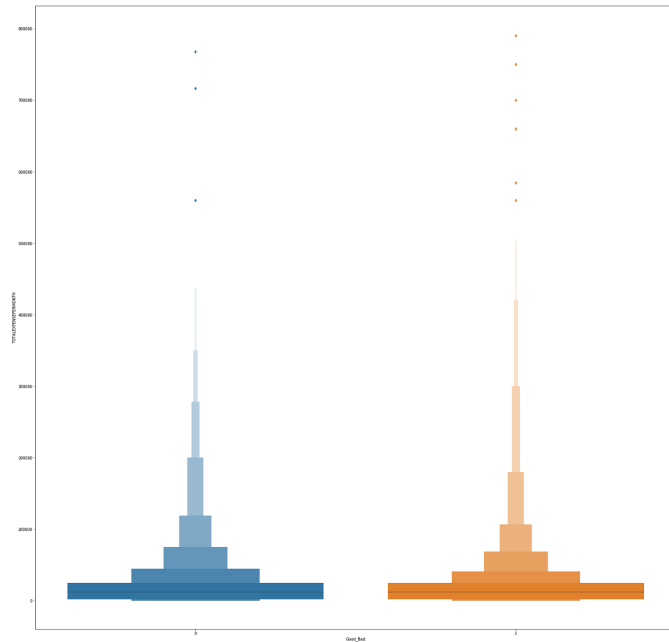


- **ASSETCOST** : From the below plot of Assercost vs Good\_Bad shows us that Bad Loans have higher asset cost than good loans.

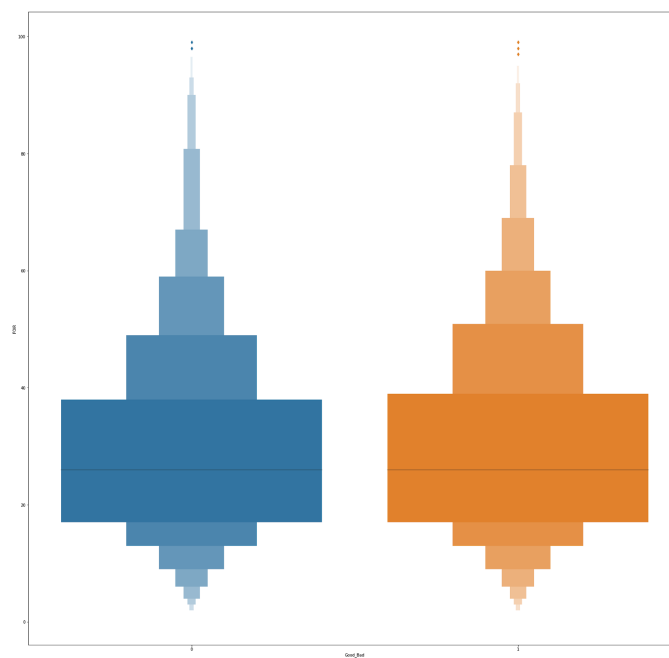


- NETINCOMEPERMONTH & TOTALEXPENSEPERMONTH:** The Net Income is higher for Good Loans than Bad loans. The Bad Loan holders have larger expenditure than Good Loan.

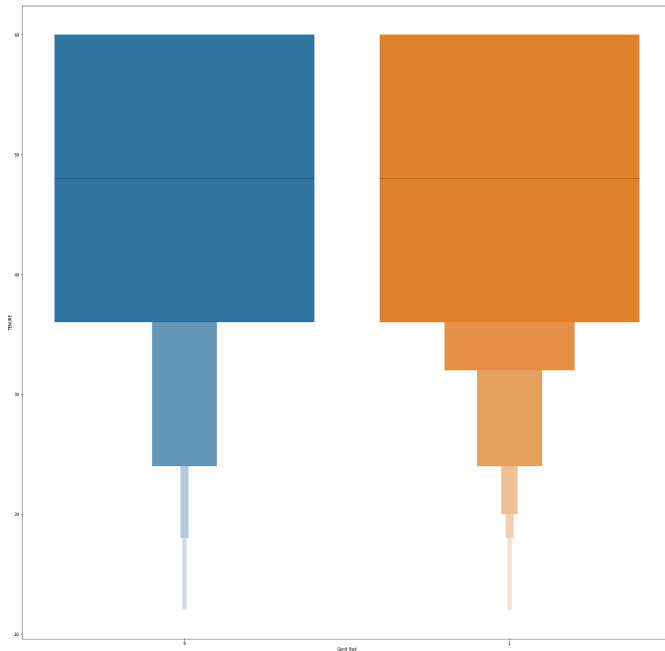




- **FOIR** : Good loans have higher FOIR than Bad loans as seen from the below plot.



- **TENURE** : Bad Loans tend to have shorter tenure when compared to Good Loans.



- The Features like Customer Type - SAL ( Salaried) , Customer profile code of 227 and 252 directly affect the loan type.
- **BUSINESSMARGIN\_GROSS** : The boxenplot shows that Good Loans have higher business margin than Bad Loans.

