

Assignment Round

Candidate: Chandrima Chakrabarty

Bad Loan Prediction:

** This is a brief report of the major outcomes. For details of analysis, please refer 'badloan_pred.ipynb' file.

- **Important Features:**

- | | |
|---------------|------------------|
| ✓ Grade | ✓ all_util |
| ✓ Installment | ✓ open_acc_6m |
| ✓ int_rate | ✓ total_acc |
| ✓ annual_inc | ✓ home_ownership |
| ✓ issue_d | ✓ pub_rec |
| ✓ loan_amnt | ✓ sub_grade |
| ✓ purpose | ✓ loan_status |
| ✓ tot_cur_bal | ✓ inq_fi |
| ✓ dti | ✓ total_cu_tl |

- **Assumptions:**

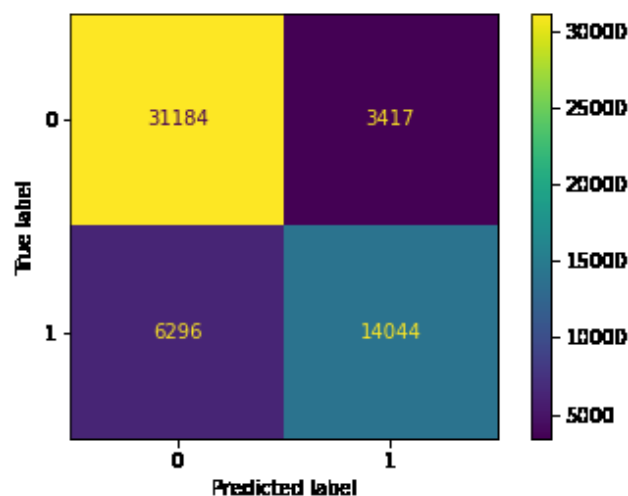
- ✓ We have collected those features, which will be available with us when a customer will submit his/her application to the lending club, as we want to predict the 'bad loan' before it is sanctioned.
- ✓ Bad Loan = 'Charged Off', 'Default' (assigning '0')
- ✓ Good Loan = 'Fully Paid', 'In Grace Period' (assigning '1')

- **Model :**

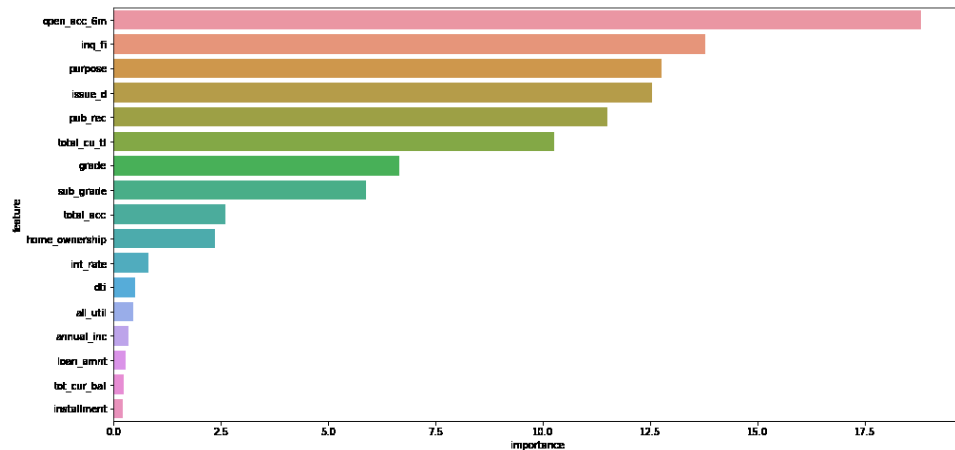
- ✓ *CatBoost* model is used

- **Accuracy:**

- ✓ Train AUC : 0.89
- ✓ Test AUC : 0.88
- ✓ Confusion matrix:



- **Feature importance :**



- **Conclusion:**

- ✓ The following graph describes that if we provide the above-mentioned features to the model and the probability of getting 1 is less than 0.4, then there is a 80 % chance for the model to predict the good loan status.
- ✓ On the other hand, if the probability of getting 1 is more than 0.4, there is a 80 % chance to get bad loan status.

