Project 3
Good or Bad Loan?

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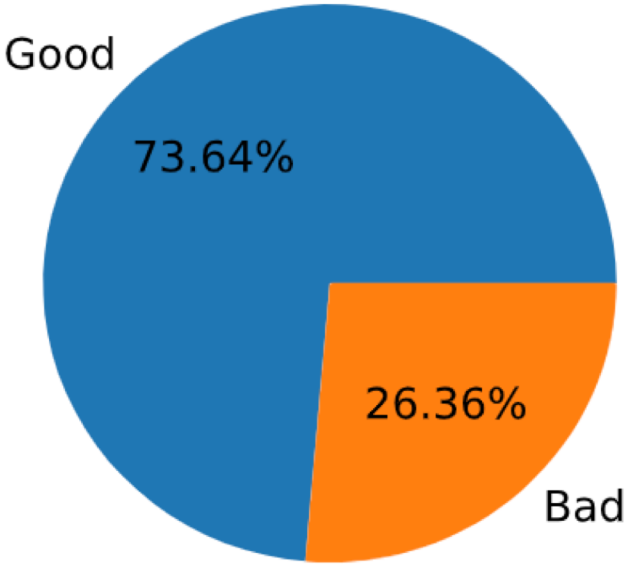
Objective

Detect risky clients

Improve policies

Data Source

- **Website:** Kaggle.com
- **Overview:** Loan data through the 2007-2015
- **Dimensions:** 75 variables, 890k observations
- **Features:** Employment, Income, Homeownership, Credit Scores, Number of Financial Inquiries, Collection among Others.

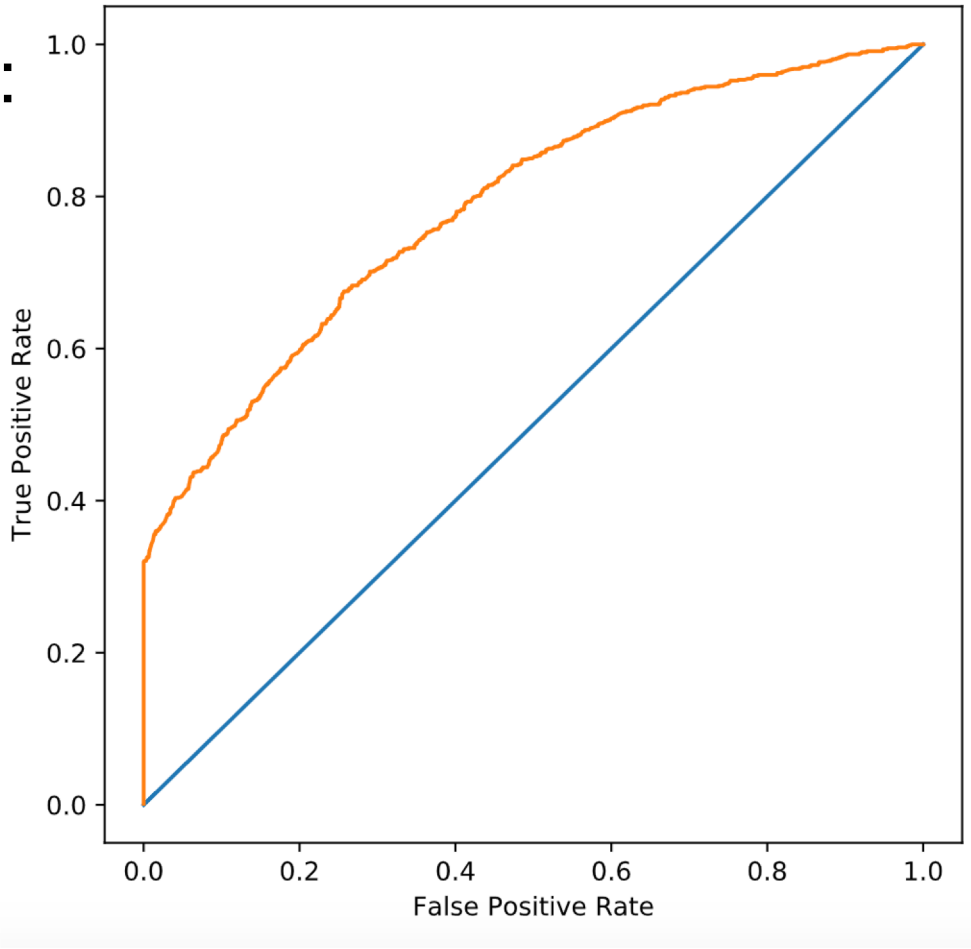


LendingClub

Model

Gradient Boosting Classifier

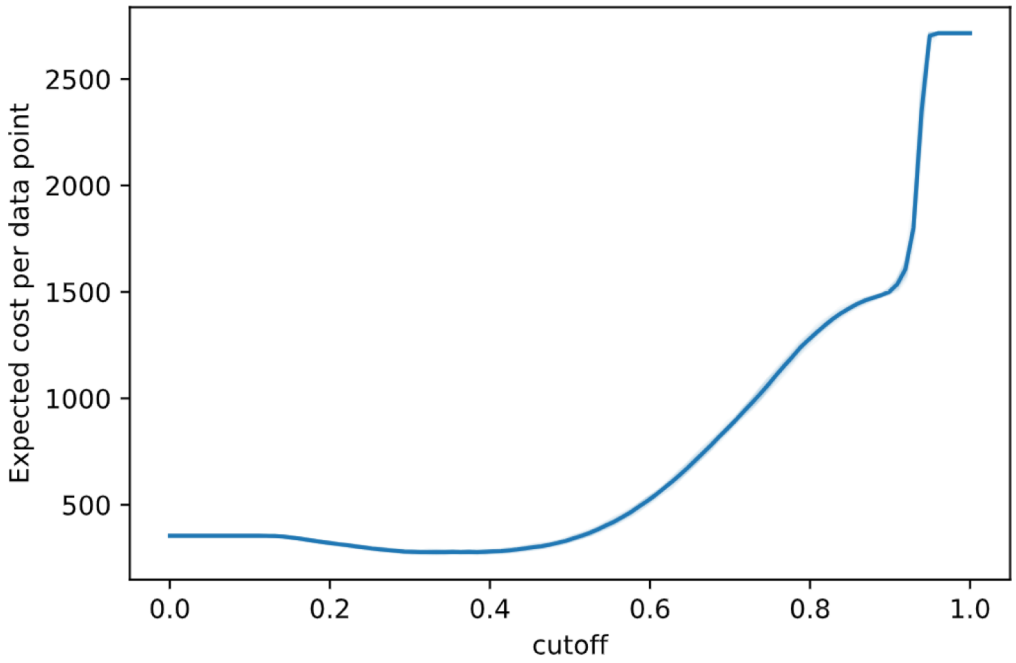
Classification Report:
Precision: 0.37
Recall: 0.86
f1-score: 0.51
ROC_AUC: 0.79



Model

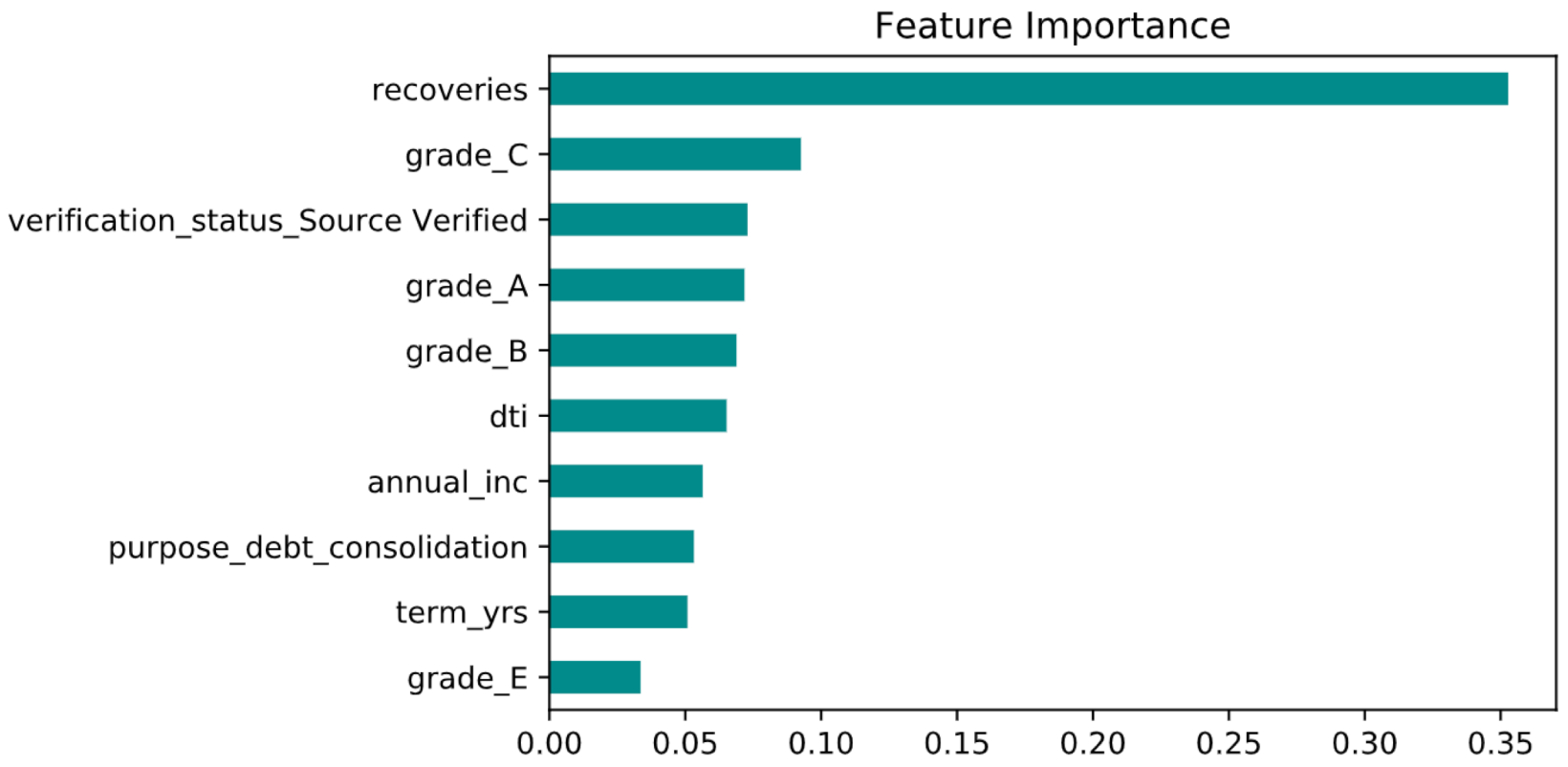
Cost Benefit Analysis

Best Cutoff:
0.38
False Positive Loss:
$1,902
False Negative Loss:
$0
True Positive Gain:
$8,509
Total Savings:
$1082/case
$24M annually



Model

Feature Importance Analysis



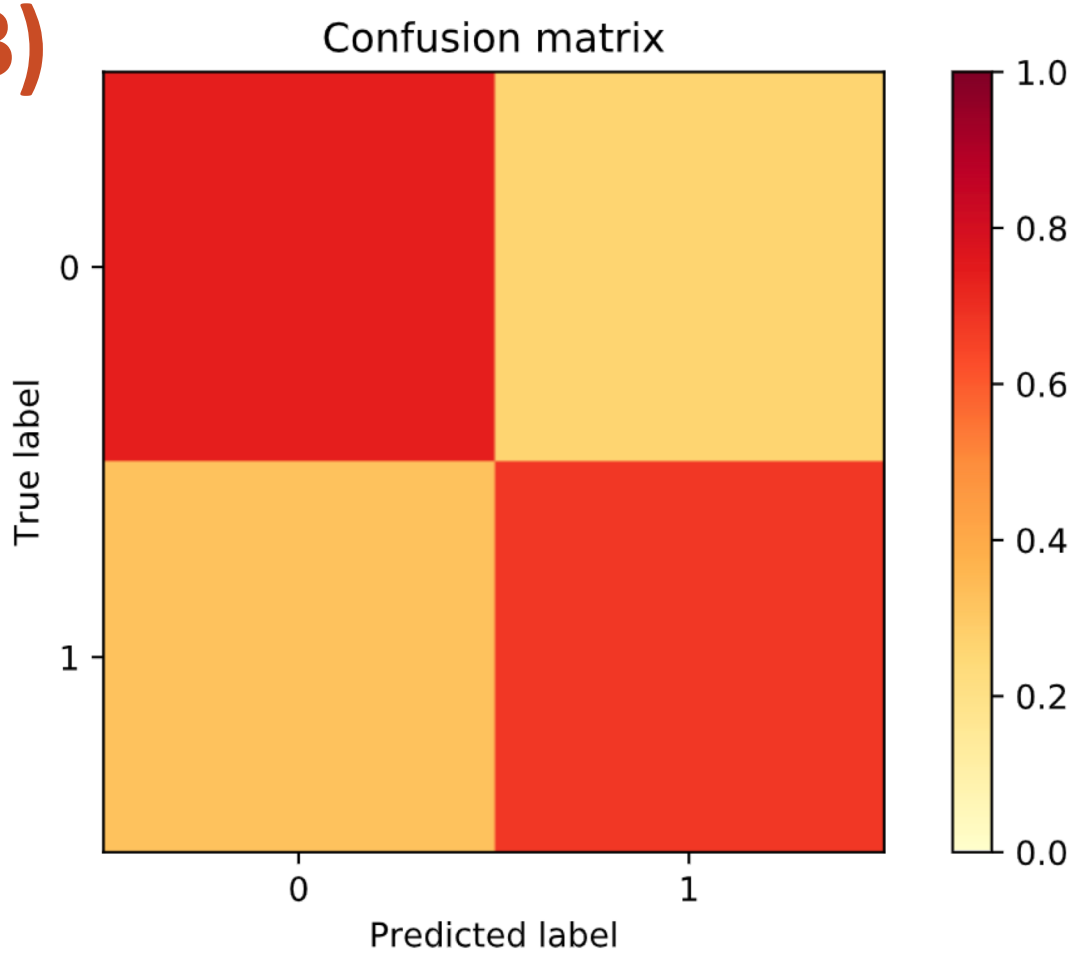
Future Work

- Make use of unlabeled rows
- Design an application with flask
- Analyze bad loan data time wisely
- Incorporate more features if available
- Run larger scale dataset on AWS machines

Thank You!

Appendix

Normalized Confusion Matrix(GB)



Appendix

Label Data Selection