PHASE III PROJECT: CLASSIFICATION OF BORROWER CREDITWORTHINESS

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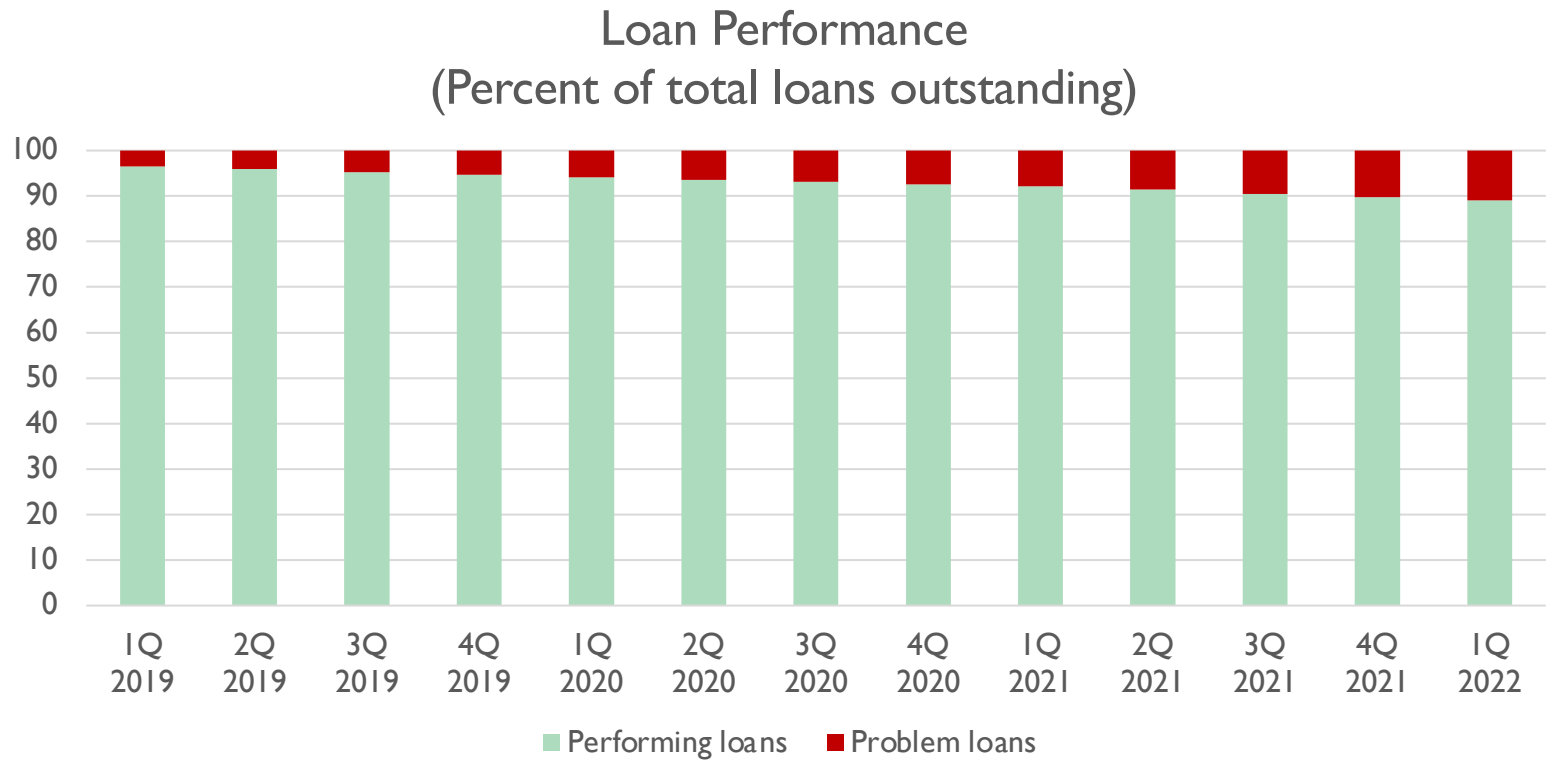
PROBLEM STATEMENT

A German bank is struggling to identify creditworthy borrowers:

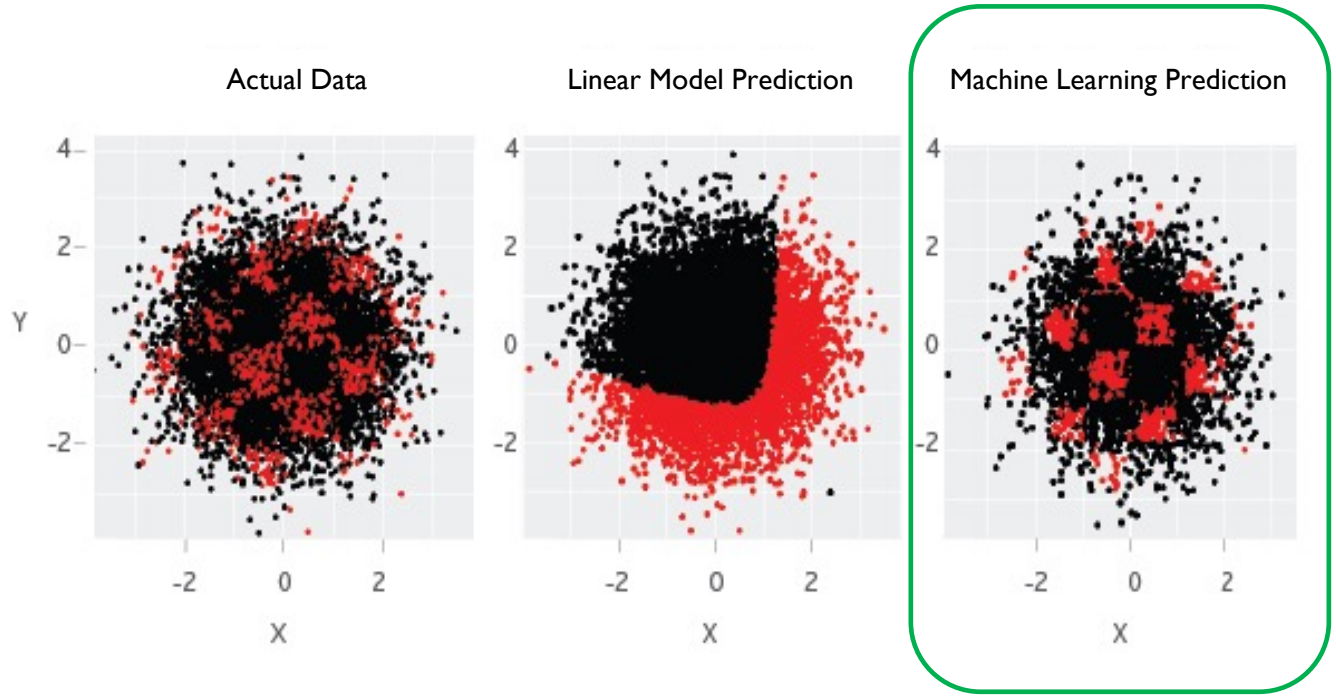
- Missed business opportunities to extend credit to good borrowers
- Increasing credit losses from non-performing loans



GOAL

Build machine learning model that is trained to assess and predict credit risk of borrowers

- Who is creditworthy?
- Who is not creditworthy?



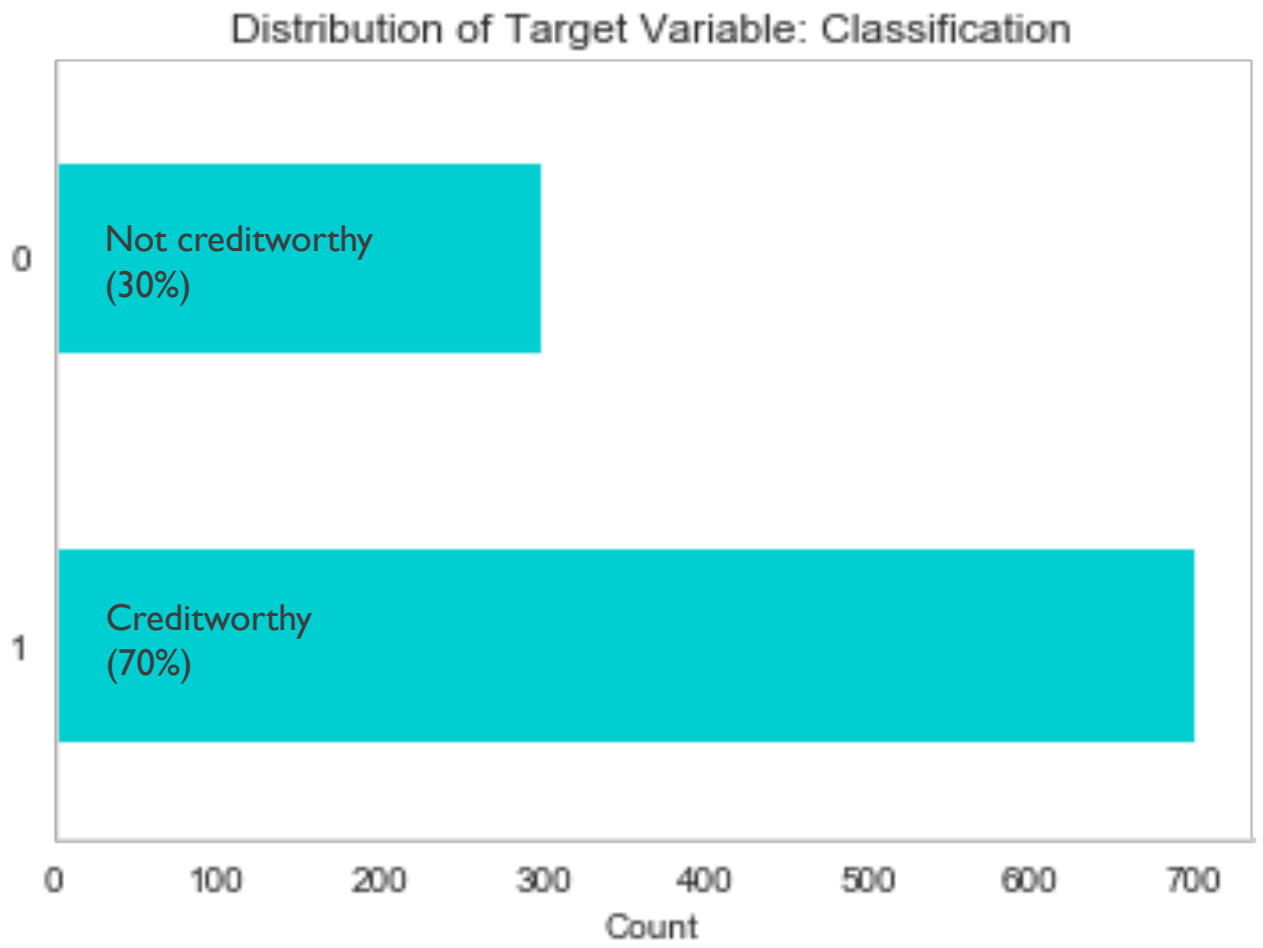
DATA UNDERSTANDING

Data

- German credit data
- > 1,000 records
- 21 variables

Methods

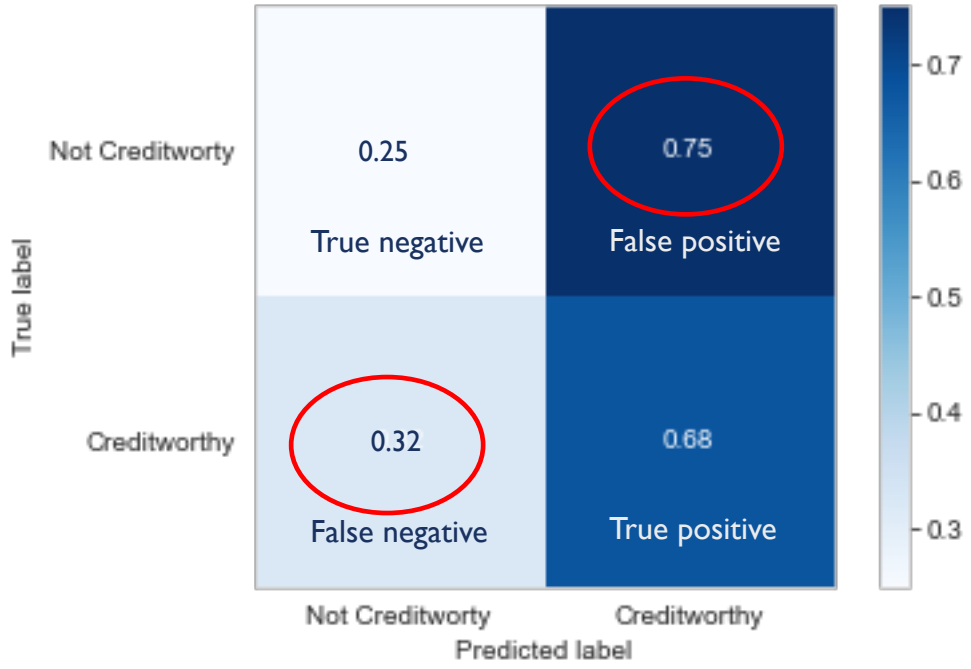
- Descriptive data analysis and statistics
- Machine learning



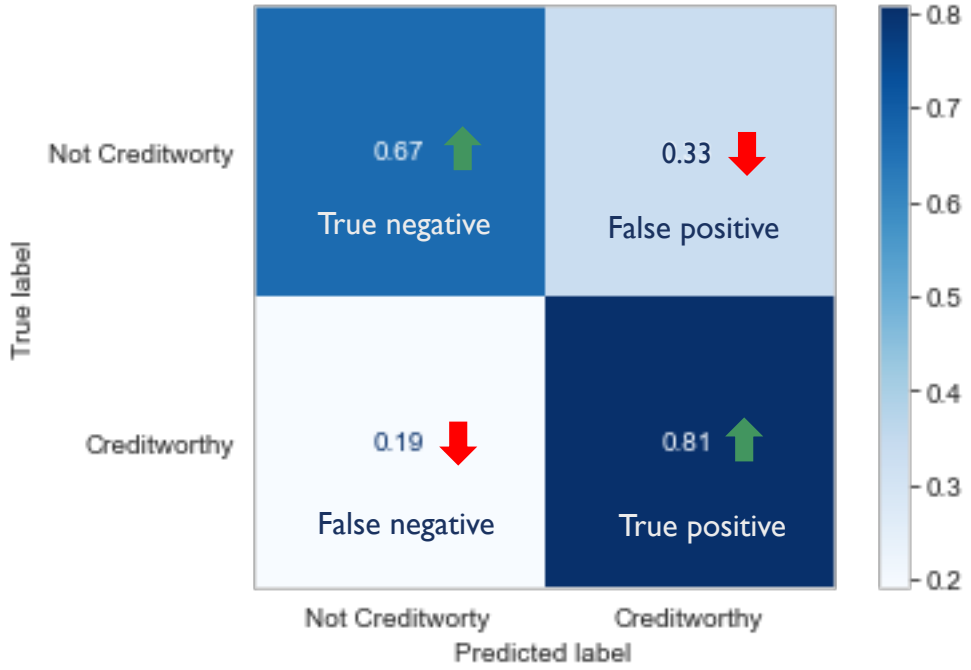
RESULTS

- Model correctly predicts 81% of true creditworthy classifications
- Reduces false positives and false negatives

Baseline Model

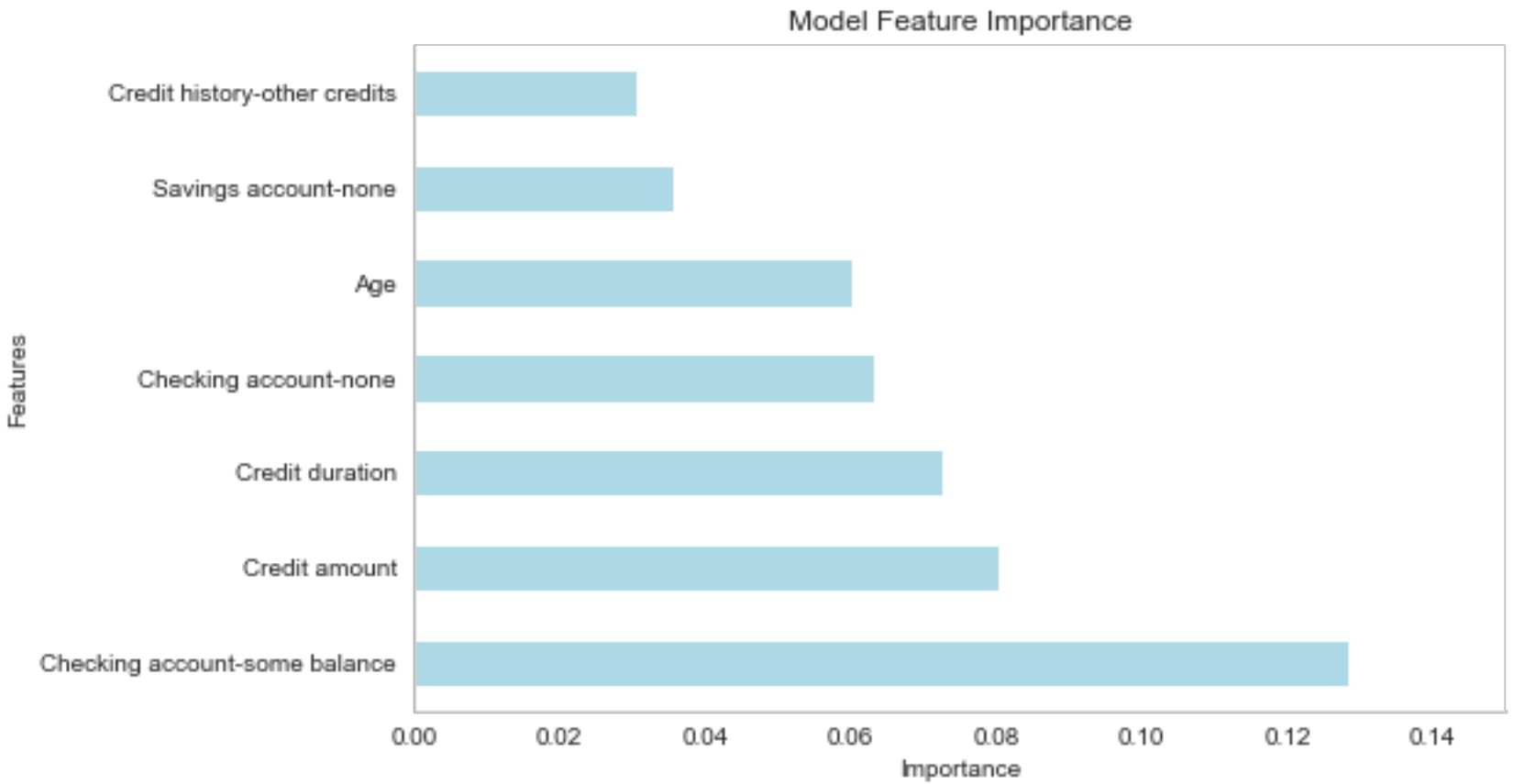


Selected Random Forest Model



RESULTS

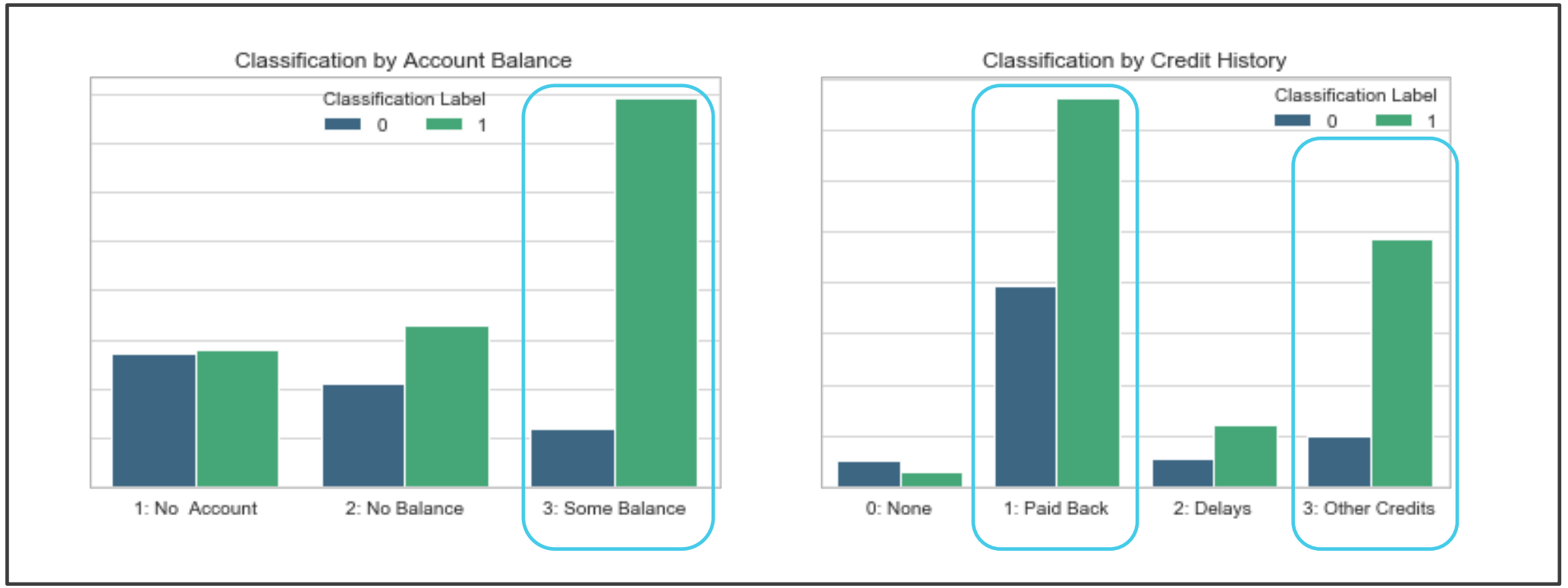
- Accuracy score of 77%
- Precision score of 85%



RECOMMENDATIONS

Target making loans to borrowers:

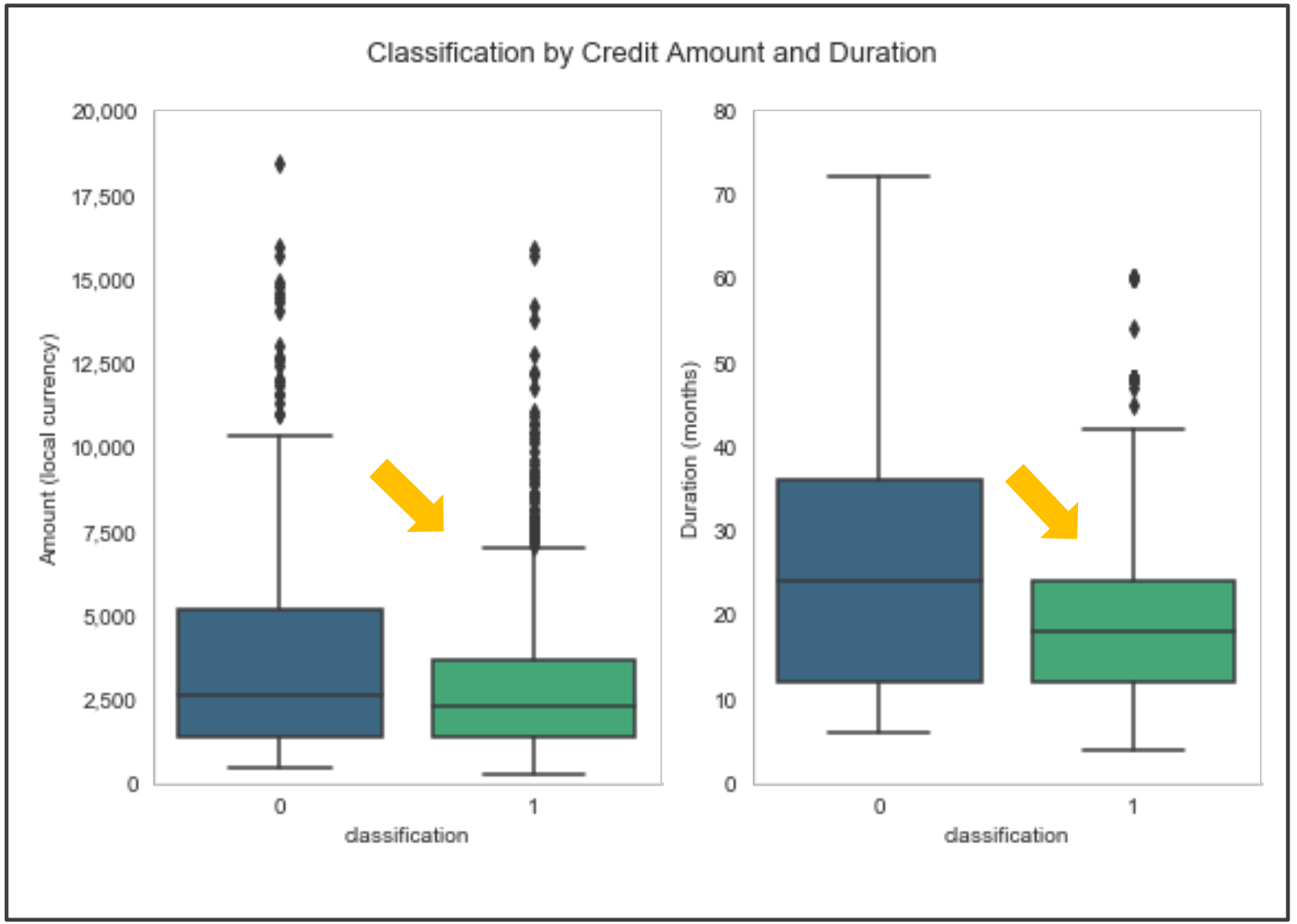
- With some balance in their checking accounts
- Who have paid back previous loans duly
- Who have other existing credits



RECOMMENDATIONS

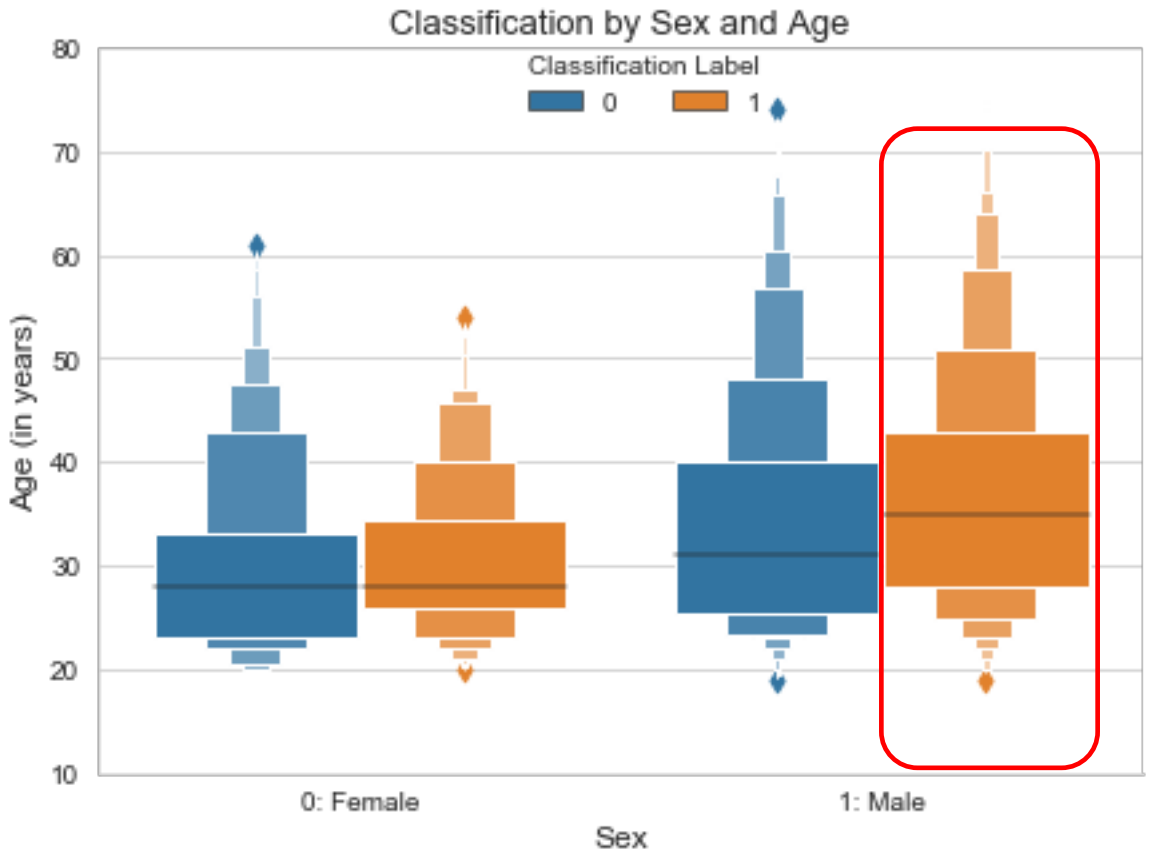
Target making loans with terms:

- Average balance of $3,000
- Average duration of 19 months



MODEL BIAS

- Model favors classifying older men as creditworthy



NEXT STEPS: EXTENDED ANALYSIS

Evaluate ML model's performance against traditional credit risk assessment

Reduce model biases in order to promote fair and equitable decision-making

THANK YOU

For questions, contact:

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