Credit Card Default

By: Anthony Schams & Ngoc Tran

August 16, 2019

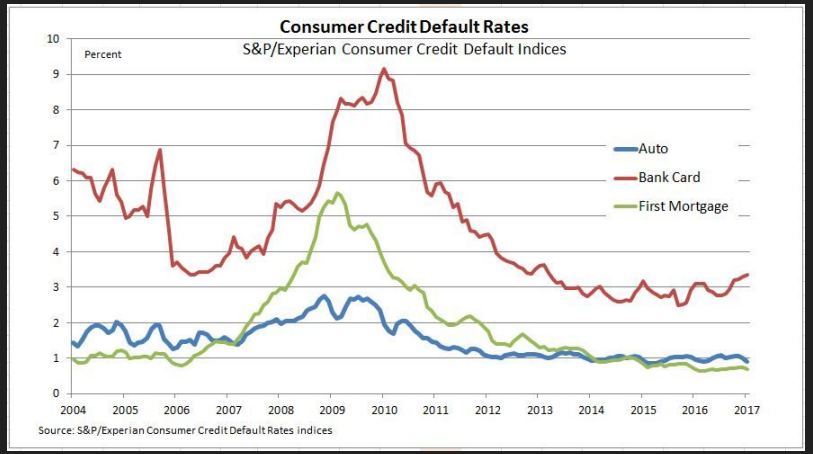
Introduction

Goal:

- Predicting who is about to default on his/her credit card

Data:

- UCI Machine Learning Repository
- Number of Instances: 30,000
- Number of Attributes: 24



- Predictors:
  - credit limit
  - basic personal info
  - past payments and bill statements info
- Target Variable:
  - default payment next month

Processed Data

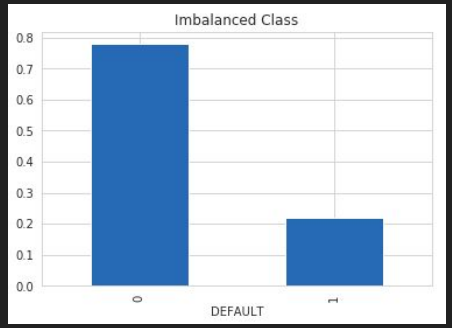
Convert all categorical variables into dummy variables

Transform all numerical features using Yeo-Johnson transformation

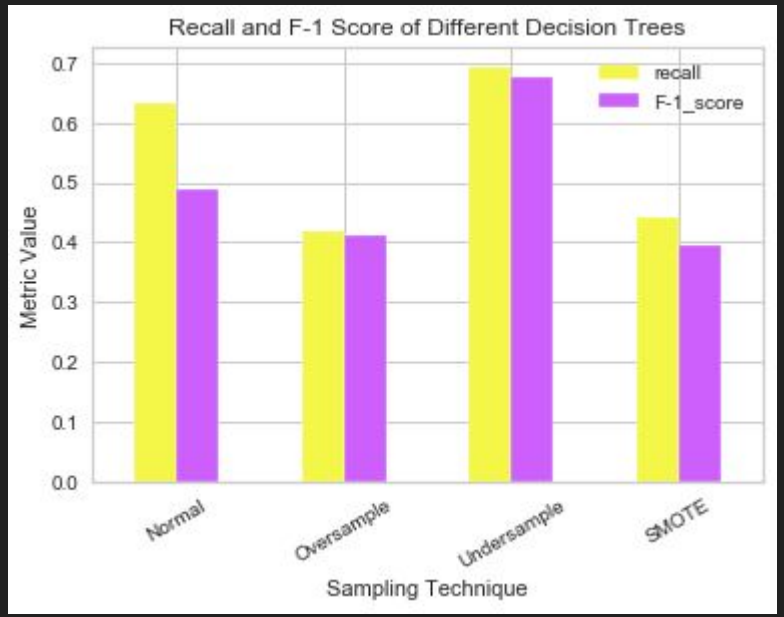
Scale all numerical features using Min-Max scaler

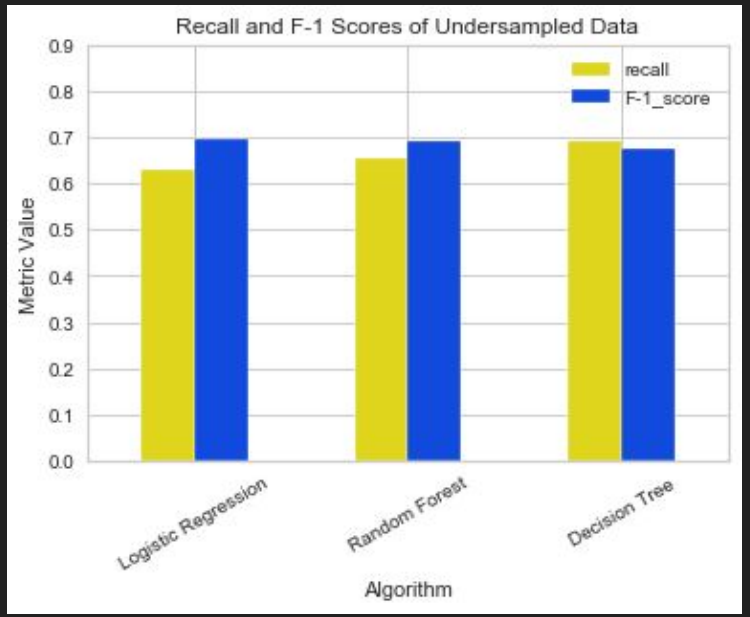
Final datasets:

- As-is
- Over-sampled
- Under-sampled
- SMOTE



Models Comparison





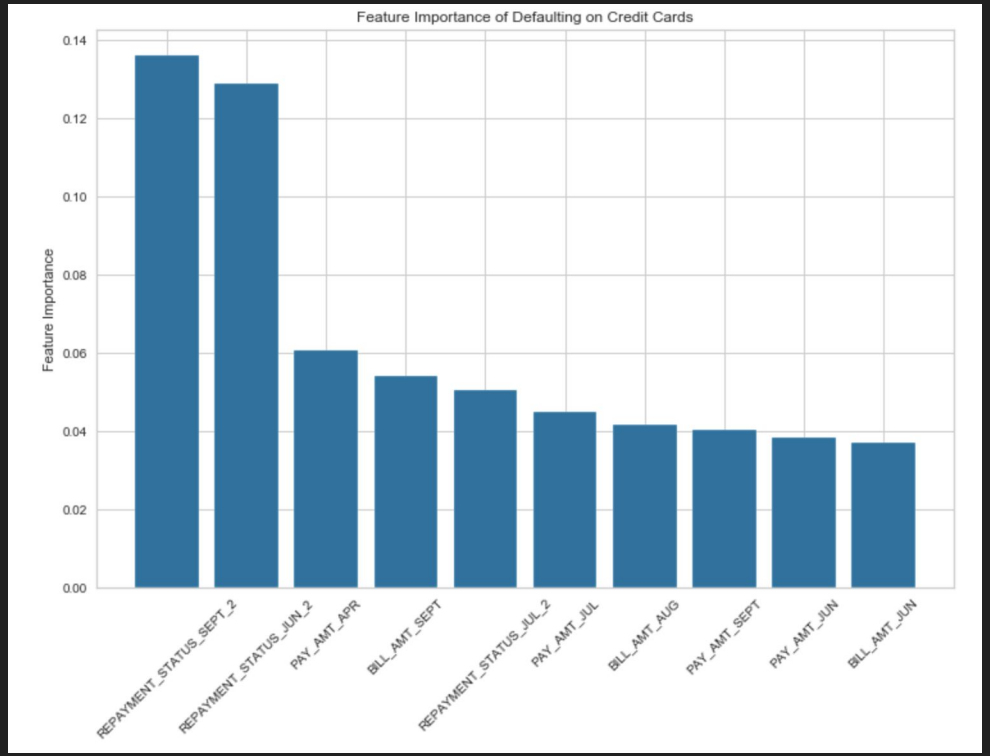
Best Model

Model:

- Decision Tree

Data:

- Under-sampled



Conclusions

- Decision Tree on under-sampled data yielded the best model, according to recall
- Being 2 months late on payments is a strong signal that a customer will default
- Bill amount also associated with default prediction

Next Steps for Future Improvements

- Collect more (and relevant) features (IS_EMPLOYED, SALARY, etc.)
- Collect more data
- Try more Machine Learning algorithms
- Try Anomaly Detection algorithms

Questions?

THANK YOU!

Sources

- https://archive.ics.uci.edu/ml/datasets/default+of+credit+card+clients
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