

Prediction of Delinquent Mortgages

February 5, 2019

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Outline

- Objective
- Mortgage Analysis
- Results
- Next Steps



Objective

Predicting for Delinquent Mortgage (Late payment) in the following month based on previous behavior of borrower

Mortgages purchased by Fannie Mae in 2018.

Delinquent Mortgages can lead to Late Fees and Foreclosures.

Mortgages that are Current can lead to fully paid out loans.

Mortgage Analysis



Data:

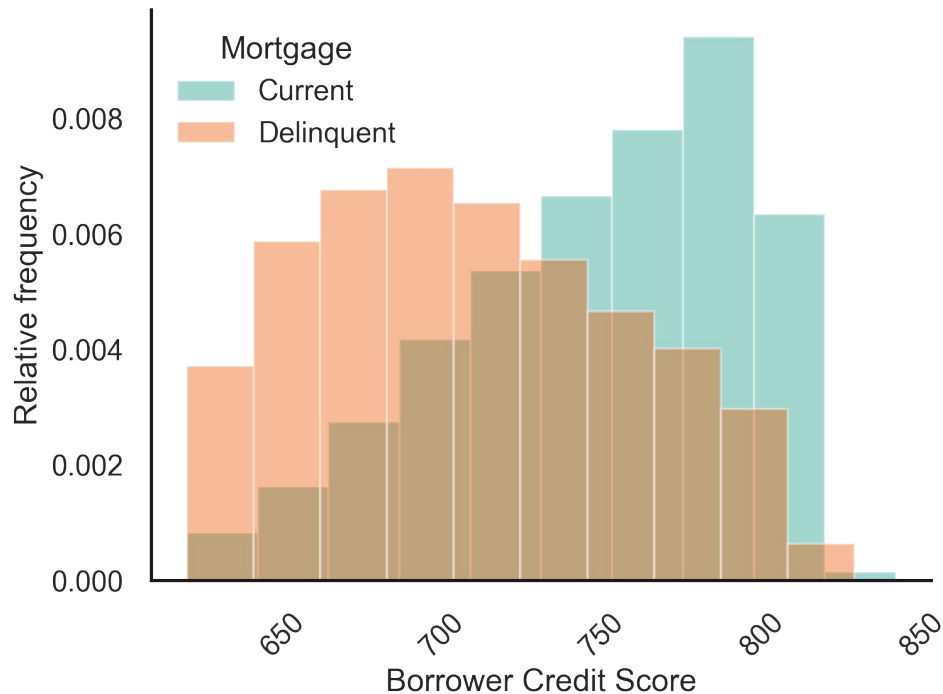
- Total acquisition loans : ~1.6 Million
- Delinquent loans : ~60 K
- Current loans : ~1.54 Million

Features:

Borrower Credit Score, Interest Rate, Loan to Value, Loan Age, Debt to Income ratio, Unpaid Balance amount, Loan purpose, Original Balance, Borrower Count, Occupancy Type, Months to Maturity, Current Payment Amount

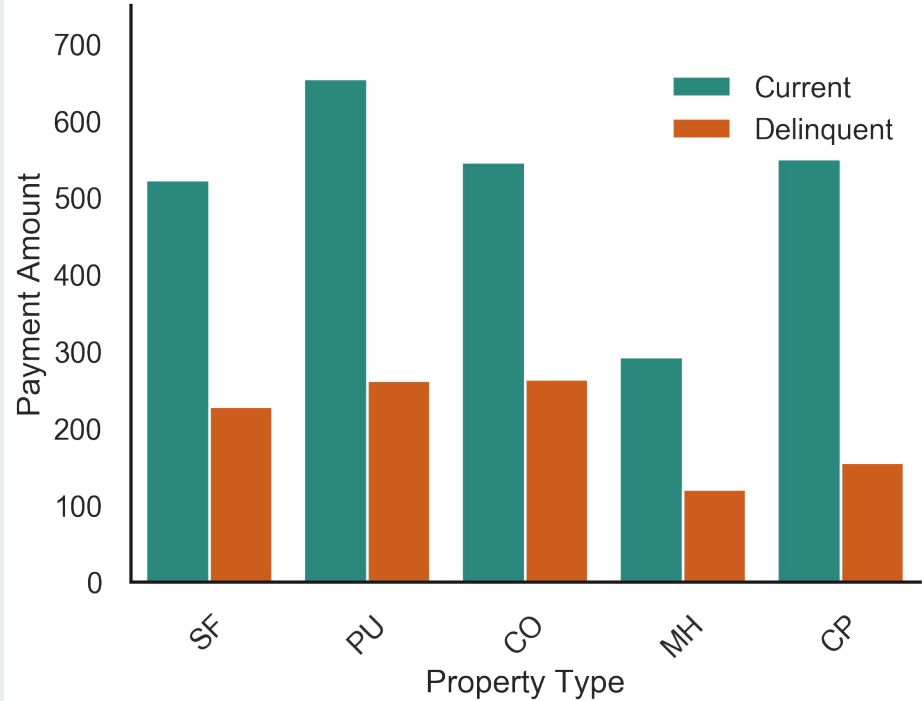
Credit Score

- **Delinquent** : 705
- **Current** : 757



Payments Vs Property type

- Delinquent : \$ 255
- Current : \$ 560

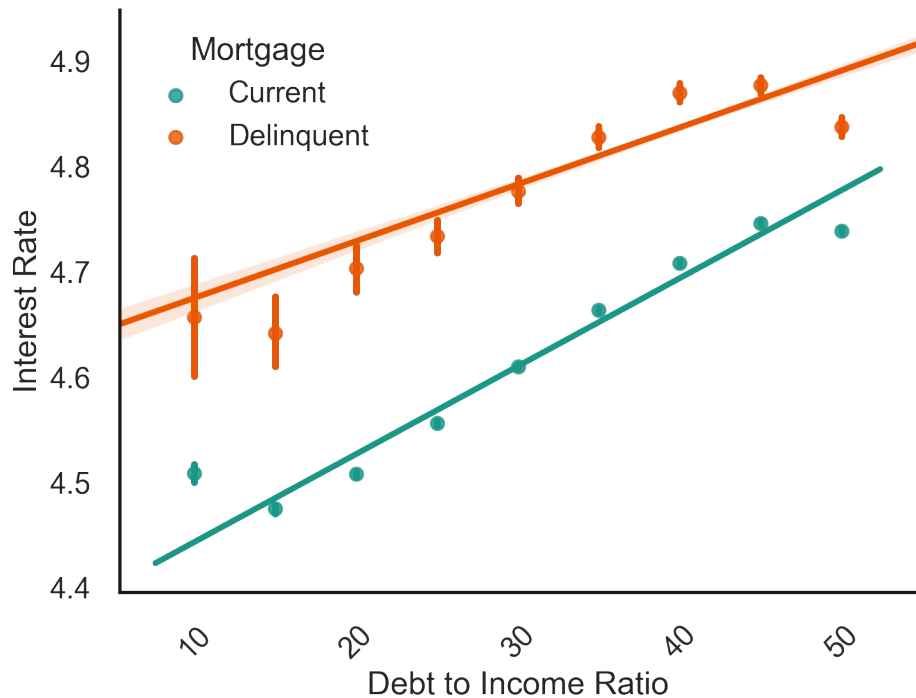


SF: Single Family
CO: Condo
CP: Cooperative

PU:Planned Unit
MH: Manufactured Housing

Debt-to-Income Vs. Interest Rate

Avg Interest Rate for every 5% of the DTI





Conclusion



Predicting Loans Delinquency

For a borrower, we can predict with **85%** accuracy whether the mortgage will likely to be Current or Delinquent with the next payment.

Best predictors: Current Payment Amount, Credit Score, Loan Age



Next Steps



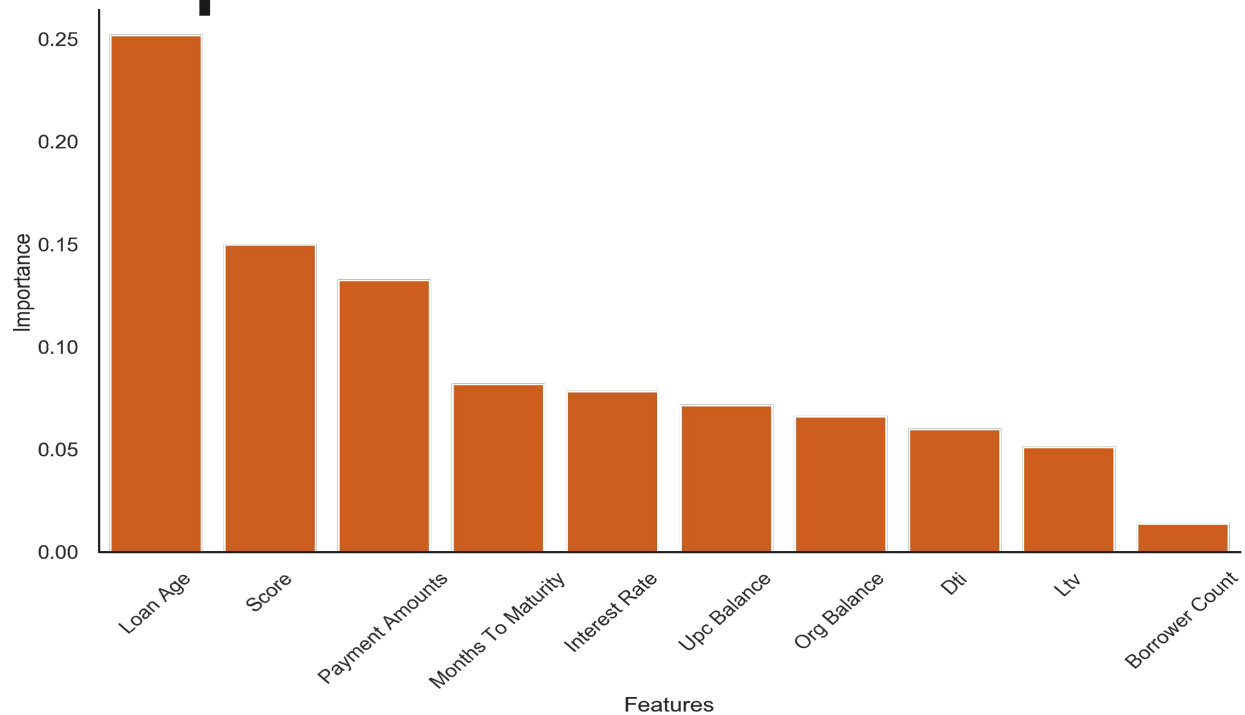
What next?

- Analyze the payment behaviour for previous 2-6 months.
- Include economic features such as Housing Price Index, Unemployment rates, and National Interest rates based on the geographical area.

Questions?



Feature Importances





Model Metrics

