2007 was a memorable year for the economy. The real estate bubble burst and the economic downturn that followed was the most severe since the Great Depression. Many parties were blamed for misdeeds and excesses, federal funding agencies among them. Fannie Mae is a federally sanctioned corporation that promotes property ownership by buying up privately issued mortgages. Fannie Mae among others received its share of criticism after the mortgage crisis. While there are many opinions, evidence is needed to shed light on the matter.

Should Fannie Mae had known better than to buy the mortgages that were originated in Q1 2007?

The analysis makes use of all the modeling techniques to build models to forecast mortgage delinquency and sheds light on following questions

1. Show model performance metrics: FP, FN, Overall error, Sensitivity, Specificity, F1, AUC. What is the best metric to evaluate model performance?
2. Did Fannie Mae have information that could have accurately predicted defaults among mortgages issued in Q1 2007?

Data – Quarter 1 mortgage origination + delinquency status dataset: **FM_2007Q1_data.txt**

Data dictionary: File layout of data file: **data_file_layout.pdf**

  Glossary of data file: **data_glossary.pdf**

Analysis Report: Predictive modeling report in R: **Fannie Mae - R - Modelling.pdf**

  Predictive modeling report in MS Azure: **Fannie Mae - MS Azure - Modelling.pdf**