



# Prudential Life Insurance Assessment

January 31, 2017

# OVERVIEW– PRUDENTIAL LIFE INSURANCE



## Problem Statement :

- Evaluate the risks presented by new business in order to determine acceptance or decline of the new business
- Build a predictive model that:
  - Accurately classifies risk using an automated approach
  - Makes it quicker and less labor intensive for new and existing customers to get a quote while maintaining privacy boundaries.
- Understand the predictive power of the data points in the existing assessment.
- Effectively enables to streamline the life insurance application process.

# BUSINESS VALUE

- Prudential has \$74 Billion in Assets Under Management.
- The current Insurance process at Prudential :



- Employing the Predictive Model will:



Improve public perception of the insurance industry



Increase household penetration

# MODELING AND RESULTS

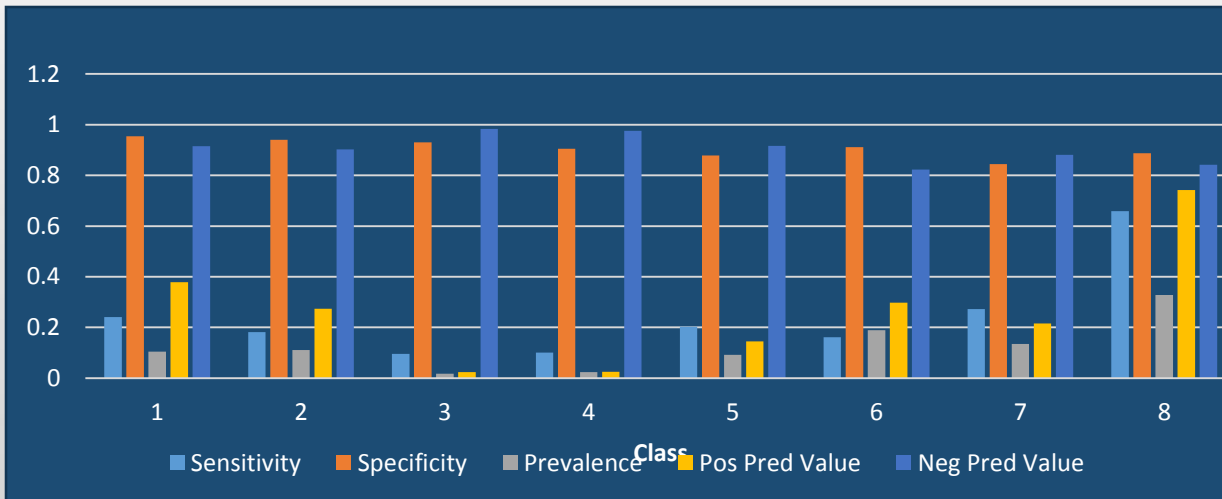
## Dataset :

The Kaggle dataset comprises of a total of 127 features including the product details, applicants' details, insurance and medical history

## Modeling :

- XGBoost is used for training the model using gbtree, of the xgboost package, as the booster.
- Train data consists of 59381 clients and test data consists of 19765 clients with 127 features each.
- Predictions range from 1 to 8, where 8 indicates the highest risk level.

## Results :



## The 5 Important Features :

- BMI
- Medical\_History\_15
- Medical\_History\_23
- Medical History\_4
- Medical Keyword\_3

- The CV results have an accuracy of 58%.
- The scoring is based on the quadratic weighted kappa, which measures the agreement between two ratings.
- The out of sample results yield a weighted kappa as 66.495