

PROBLEM STATEMENT:

Flight delays can be very annoying to airlines, airports, and passengers. Moreover, the development of accurate prediction models for flight delays became very difficult due to the complexity of air transportation flight data. In this project, we try to resolve this problem with approaches used to build flight delay prediction models using BPN and Radial Basis Function. Flight delays are gradually increasing and bring more financial difficulties and customer dissatisfaction to airline companies. To resolve this situation, supervised machine learning models were implemented to predict flight delays. The data set that records information of flights departing from JFK airport during one year was used for the prediction. Seven algorithms (Logistic Regression, K-Nearest Neighbor, Gaussian Naïve Bayes, Decision Tree, Support Vector Machine, Random Forest, and Gradient Boosted Tree) were trained and tested to complete the binary classification of flight delays. The evaluation of algorithms was fulfilled by comparing the values of four measures: accuracy, precision, recall, and f1-score. These measures were weighted to adjust the imbalance of the selected data set. The comparative analysis showed that the Decision Tree algorithm has the best performance with an accuracy of 0.9777, and the KNN algorithm has the worst performance with an f1-score of 0.8039. Tree-based ensemble classifiers generally have better performance over other base classifiers.