Data Analysis for ITSM Incident Management

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Video link:

IST 707 Data Analytics
Instructor : Ying Lin

Problem Statement

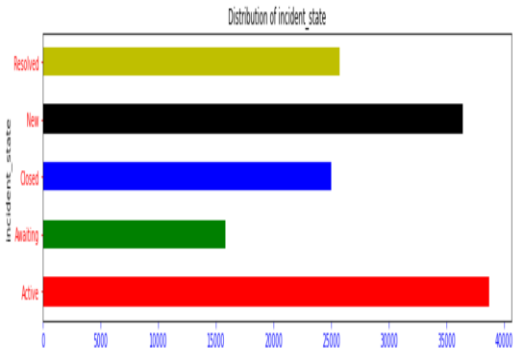
IT firms usually work by using test management tools for requirement gathering and solving system related or user related problems using those tools. By predicting when those issues were supposed to be resolved and when they were, we can find whether employees are resolving those issues considering urgency and those priorities and how impactful it is when those system or user issues are closed before the actual time mentioned.

Project Objective

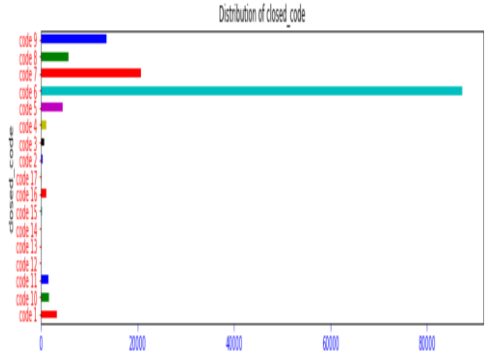
The objective of this project is to correctly predict if a system or user issue is resolved, time taken to resolve those tasks . We will also be looking at important attributes that will help us predict the reasons behind the time taken for an incident to be resolved and closed.

Dataset Description

The training dataset consists of a total of 36 assessment parameters. The group of independent variables is a mix of categorical and numerical type of data. The dataset consists of 1 case identifier, 1 state identifier, 32 descriptive attributes and 2 dependent variables. There are 28 categorical, 5 continuous numerical and 3 discrete numerical variables.



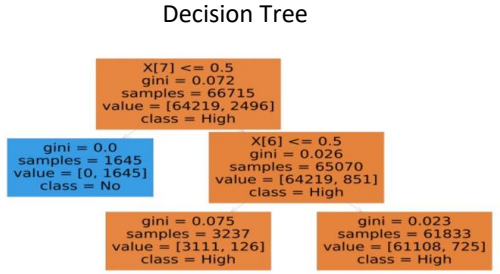
Distribution of total incidents



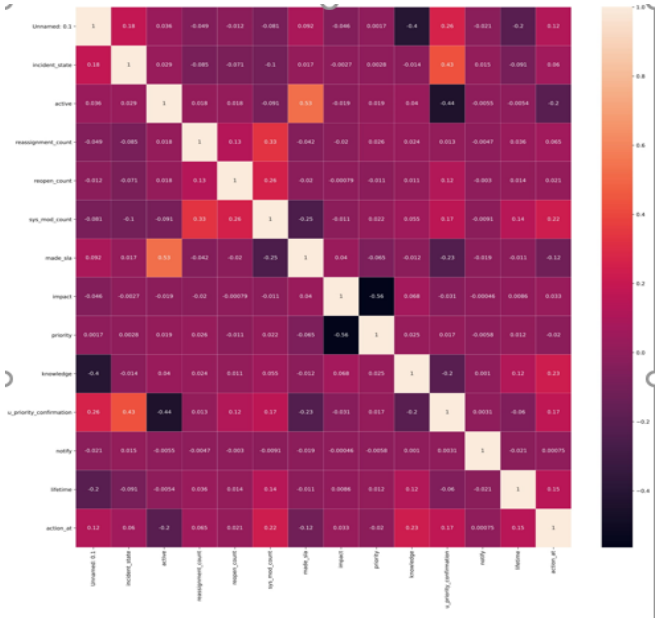
Distribution of closed code

Statistical Models

Model	Accuracy
Decision Tree	98.65%
Naïve Bayes	94.25%
Support Vector Machine	96%
Logistic Regression	98.65%



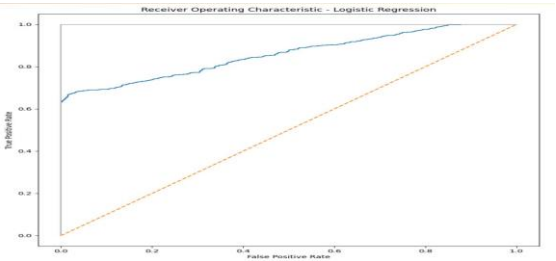
Feature Importance



Performance Evaluation

Baseline model logistic regression and decision tree gave us the best accuracy score. The best hyper parameters were : c-value=0.1, Penalty=l1,solver=liblinear.

ROC curve – Logistic Regression



Conclusion

There is very clear pattern that if SLAs mostly get missed for critical and high priority incidents whereas SLAs are met for Moderate and Low priority incidents. We could also forecast that high impact with critical priority incidents would be solved before any other incident and that is a positive outcome.

Web App - Streamlit

An application that enables customization of parameters to predict the issues.