

PREDICTIVE ANALYTICS WITH MACHINE LEARNING

Incident Volume Forecasting

Data Source :

Telecom Company Data

Data Type :

Ticketing System Data

Application :

Analance



PROOF OF CONCEPT – POWERED BY ANALANCE

One of the key drivers of customer satisfaction in the telecommunications space is being able to provide a quick incident resolution. Long wait times and failure to provide a timely resolution would contribute to lower CSAT scores. This means customers are unhappy with how their incident was prioritized or handled, which negatively impacts the customer experience and retention.

To ensure that a major telecommunications company attends to customer issues in a timely manner, Ducen implemented a predictive system that uses its enterprise analytics platform Analance[™]. The predictive model **forecasted the number of incidents** that can be expected on a monthly basis. This helped the organization build an effective resource allocation strategy to better manage call volume and ensure first call resolutions.

LEVERAGING ML TO PREDICT INCIDENT VOLUME

Analance used historical ticketing system data to predict the number of incidents that can be received in a given month — with summaries and findings easy to explore through dashboards and reports.

By leveraging Analance machine learning (ML), the telco company anticipated incident volume and made the necessary preparations. Based on patterns and trends in the type of incidents, handled historically, engineers and customer service representatives were better informed to handle reported incidents and provide first call resolutions. This helped the telco make better staffing decisions and engage in proactive workforce management.

BUILDING THE MODEL

The number of ticket incidents created in the past was used to build and train the prediction model. There were a total of 659,875 tickets. Different predictor variables were considered for the model such as service type, device type, customer severity, when it was raised (business hour or not), location, and more.

All other variables available were also studied to understand distributions. Data was cleaned by the means of handling outlying values, missing values, and looking for interrelationships between predictors before looking to see if any data had a significant relationship with the outcome. A Bivariate Analysis was done for all predictor-outcome combinations, which helped in restricting the analysis to only those predictors that majorly influence incident volume.

The number of incidents to be predicted is a continuous data column, which is why the regression machine learning model was chosen for prediction.

MODEL RESULTS

A total of 5 different regression models were built but the Random Forest Model was chosen as the winning model based on the R-square and Mean Absolute Percentage Error (MAPE).

- The top three variables that help in predicting incident volume are province, service type, and device type. These contribute to 61% of the data prediction.
- The model predicted a greater number of incidents than the actual during all months, except for March 2019.



- The calculated MAPE is 0.10, which means that the prediction model forecasts incident volume with an error margin of 10%.

NEXT STEPS

The incident volume prediction system can be used in production to predict the number of tickets with respect to location, service type, and device type in any given month. This can help telco organizations optimize agent performance by improving key metrics: a higher first-call resolution rate (FCR) that measures how well customer issues are resolved the first time they call, and a lower average handling time (AHR), which is the time required to handle a call.

The prediction system can also facilitate timely resolution through drilling down into specific ticket details (ticket summary, assignee, total ticket time, ticket touch time). Engineers and agents can contact other technicians to get an idea of how similar tickets were resolved.

ABOUT DUCEN

Ducen is a trusted technology solutions provider that aims to empower Fortune 1000 companies through quality solutions and services. We work with organizations across various verticals to drive business outcomes and enhance their customer experience. Through our enterprise analytics platform, we build and manage data-driven digital platforms including business intelligence and advanced analytics solutions. We also offer a comprehensive services portfolio covering data management and cyber security to help clients stay ahead of the technology curve.

For more information please visit www.analance.com