FLIP ROBO

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INTRODUCTION

Business Problem Framing:

The retention and acquisition of users are the major concerns in telecom industry.
The fast growth of marketplace in every business is giving rise to increased subscriber base. Accordingly, companies have recognized the significance of retaining the customers who is on hand .It has become necessary for service-providers to reduce the churn rate of customers since the inattention might negatively influence profitability of the company.

Churn prediction contributes to identify those users who are likely to switch a company over another. Telecom is enduring the problem of ever-increasing churn rate. Accordingly, the current study employs machine learning algorithm on big-data platform.

Machine learning algorithm techniques facilitate these telecom firms to be protected with efficient approaches for lessening the rate of churn.
Silent churn is one type which is considered complicated to predict since there might have such kind of users who might probably churns in the near future. It must be the aim of the decision-maker and advertisers to lessen the churn ratio since it are a recognized fact that comparatively.

Conceptual Background of the Domain Problem

The telecommunications industry across the world is becoming one of the major sectors and consequently the technical growth and the ever-developing operator number increased the level of competition.

Telecom firms are making an effort to subsist in this rivalry market and some measures have been formulated to bring in huge amount of revenues.

To enhance the retention time of customers it is important for the companies to lessen the possibility of churn of customer, referred to as "the movement of customer from one service provider to another service provider

The churn of customers' is considered a major issue in service fields with increased cutthroat services emphasized that machine learning applications are increasingly effective to predict this situation.

The underlying principle of customer churn prediction in terms of telecom industry is to calculate subscribers approximately who literally feel like to leave from a company they used so far and suggest solutions to prevent considerable churns.

Recently, making an estimation of churners before they quit has become necessary in the environment of stiff competition amongst companies.

Review of Literature

➢ The Review of literature chapter describes several works associated to the customer churn prediction concept in telecom sector using machine learning in big data platform.
➢ In addition to these, this research investigates briefly about techniques involved in machine learning algorithm for acquiring accurate prediction level of telecom customers.

Motivation for the Problem Undertaken

➢ To investigate the impact of customer churn in telecom industry as a whole.
➢ To discuss the significance of customer churn models in telecom industry.
➢ To compare the algorithms that is effective in reducing churn rate in telecom companies.

Analytical problem Framing

Emphasized that it is important for Telecom Company to have churn Prediction model in order to prevent their user from moving to another operator services. Consequently, the underlying principle of this study is to develop the customer churn Prediction model.

Machine learning can possibly be the sort of tools which could help Telecom companies in churn prediction model. Machine learning is a kind of artificial intelligence tools which give the capability to let computer learns the algorithm instinctively without human contribution.

Comparatively, churn prediction in telecom has been considered as unique application domain to churn prediction than other subscription- based industry as a result of the variety, volume and biases of the information

Use machine learning methods to create predictive models

Companies analyze data using different types of analytics, including predictive analytics, which is used to look at the relationships among different metrics.

To create solid customer retention strategies, we can use predictive analytics to make predictions about the future, by looking at historical data, to learn what customers may like or dislike.

Often, you might be overwhelmed by the number of variables you have to manage and analyze all at once. Although you may have a highly skilled data analyst at hand, it's still time-consuming and labour intensive to manually and quickly sift through the sheer volume of data to find the optimal predictive model.

To create the best predictive models of retention, rely on the power of machine learning to quickly and accurately uncover the underlying reasons why customers are churning or why they're loyal to your brand.

Machine learning uses math, statistics and probability to find connections among variables that help optimize important outcomes such as retention. These models are then applied to new customer data to make predictions.

Machine learning algorithms are iterative and learn on a continual basis. The more data they ingest, the better they get. Compared to human performance, they can deliver insights quickly thanks to the processing capability of today.

1. Prescriptive Analytics

Facilitates focusing on answering a specific question, and can help to determine the best future solution among a variety of options, and suggest options for how to take advantage of a future opportunity or illustrate the implications of each decision to improve decision-making. For customer retention, examples of prescriptive analytics include the next best action and next best offer analysis.

2. Predictive Analytics

This is the most commonly used method. Predictive analytics uses models to forecast what might happen in a future, specific situation. This could be next best offers, churn risk and renewal risk analysis.

3. Descriptive Analytics

Not always the best value results, and fairly time-consuming, it can still be useful for uncovering patterns within a certain segment of customers. This technique provides insight into what has happened historically and will provide you with patterns and trends to be able to investigate the detail. Examples of descriptive analytics include summary statistics, clustering and association rules used in market basket analysis.

4. Diagnostic Analytics

This technique is often used when trying to identify why something happened, such as looking into churn indicators and usage trends amongst customers. Examples of diagnostic analytics include churn reason analysis and customer health score analysis. It mainly looks to past events, focusing on causal relationships and sequences.

5. Outcome Analytics

Also known as consumption analytics, outcome analytics gives insight into customer behavior that drives specific outcomes. This approach is focused on consumption patterns and associated business outcomes. Use it to understand your customers better and learn how they are using your products and services.

Model/s Development and Evaluation

Training and Testing Predictive Models

The goals of Predictive Model fitting are,

- ➢ To identify the customers with high probability of switching to competition
- ➢ To identify the major causes behind the tendency to leave (feature importance)
- ➢ To make predictions and assess the capacity of the model for future data (Predictive power)
- ➢ Use all the results and make recommendations to the telecom company.

Metrics to assess the model:

We are interested in customers who have tendency to go away .We may not mind a few false alarms especially if the measures taken to retain them are relatively inexpensive compared to the loss due to missing the true alarms. The measures taken on the customers who had no intention to leave can result in improved customer satisfaction and hence long term benefits.

Comparing the Results, Feature Importance:

Logistic Regression is more interpretable, faster, gives better overall accuracy than Random Forest, with slight degradation in recall of Churn group.

CONCLUSION

A predictive model is given that ranks customers based on their probability of churn and the revenue that they bring. Use this model to prioritize whose concerns to be addressed first. Sometimes it might be case by case basis.

Take the following actions immediately:

> ➤ Try striking a longer contract with new customers: two year or one year in that order of preference.
> ➤ Leverage the time to improve the quality of services, on the high cost ones like Fiber optic.
> ➤ Improve on the Technical support on all services like streaming, phone connection and internet. Be up-to-date with current technology.
> ➤ Collect customer feedback and act on it immediately to prevent new customer churn

Next: It will be helpful to understand why churn started 5.5 years ago. Give more historical data to the data scientist for analysis.

Scope for future work:

> ➤ More predictive models could be tried; however, there is no guarantee of better accuracy, as we have seen similar accuracy with logistic regression and random forest. This actually means most of the variance in the data is explained.
> ➤ One could collect more data through surveys, analyze those using NLP techniques and take more measures.
> ➤ There is a scope to collect historical data on company customers over a few decades, and fight out clear reason for customer drop happened 70 years ago.