

Customer Churn Prediction using Deep Learning Technique

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Summary

Customers are the backbone of any business. That's why every company wants to achieve the highest level of their customers' satisfaction. Customer churn is the period in which a company suffers a heavy loss due to the discontinuation of regular customers. If any company (e.g., Etisalat or Du) wants to satisfy their current customers, they must know why their customers are leaving. Several factors force a customer to move on to another company, like cost and/or quality of service. A huge number of customers leave the company when they feel that a particular product or service is not up to the mark, or they feel that the company does not provide security. Therefore, due to trust and/or satisfaction issues, customers might leave the company and move to another. Due to customer churn, companies must face massive profit loss, or even worse, they may have to cease their business. Companies spend a lot on attracting new customers which makes it even more crucial to retain the existing customers.

The basic purpose of customer churn prediction is to observe the customers who are on the verge of leaving the company specifically in the telecom industry. Customer churn prevention is one of the prime factors when any organization wants to increase its revenue. Predicting customer churn is also useful to grow retention strategies for the company. This research work deals with the problem of classifying customers into churn and non-churn. There are existing machine learning systems/solutions to classify customers; however, the selected features and the models developed and trained do not provide an efficient way to find the customers who have a greater chance of churning. Therefore, we used a deep learning technique, namely Bidirectional Long-Short Term Memory – Convolutional Neural Network (BiLSTM-CNN). BiLSTM retains information in given

data by retaining both the previous states of data and the upcoming states. Like this, the CNN layer obtains input from BiLSTM with adequate background information, diminishing the problem of finite background information related to the unidirectional LSTM layer for categorizing the data into churn and non-churn. In addition, the research also overcome the limitation of existing solution and provide better churn prediction in-terms of accuracy and performance.

A telecom industry's churn prediction system has been presented in this research work with relevant evidence. End users actively contribute to the definition of the criteria for each churn management application (users of churn prediction applications). The telecom sector (e.g., UAE Telecom Sector having Etisalat and Du) has designated several end-users for engagement at various phases of the process to give ongoing input. This help to figure out what real users want and how to get the planned work out into the real world after the pilot stages i.e., the future. implementation. For telecom experts, the findings of this research study might serve as a reference point and can be used in the development of new technologies and solutions.