Churn prediction using big data in telecommunication industry

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INTRODUCTION

The problem these days is the major loss of revenue for telecommunication companies due to customers leaving a particular telecom operator because of unsatisfaction with services and packages. This issue is creating a big gap of finances in telecommunication sector which ultimately effects the economy of a country because telecom sector form a major part of economy of a country. So the question here is how can data analysts predict churn ratio using big data in the telecommunication industry to understand the reasons due to which customers leave a particular telecom operator? **Research exigence in this domain is the use of wrong type of data and wrong algorithms to predict churn ratio and that is the reason no one was able to reach to a concrete solution for this problem**. **So the purpose of this study is to find algorithms and data sets to predict the most accurate churn results so that this gap could be filled**. Object of study is churn prediction using big data in the Telecommunication industry to understand the reasons due to which customers leave a particular telecom operator so that remedial strategies can be introduced to control number of customers from leaving an operator. Visual representation of exigence is as follows.

CHURN PREDICTION

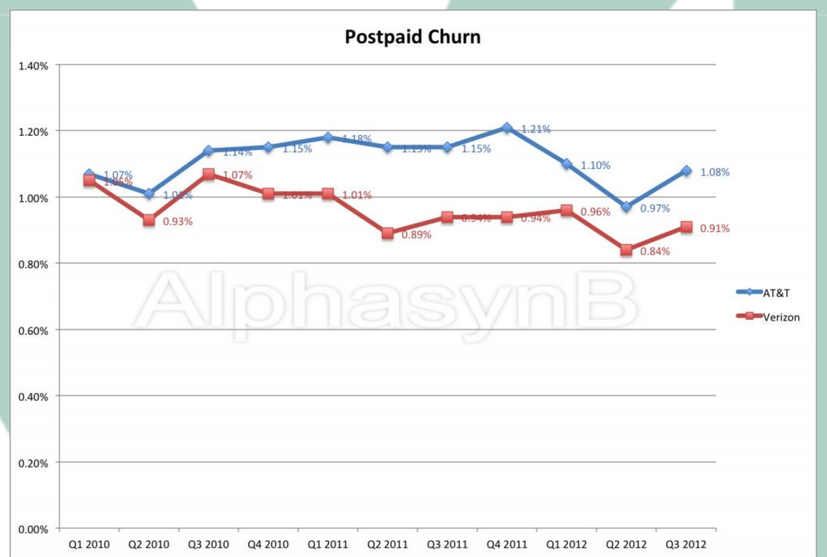

Fig 1 Comparison between AT&T and Verizon Postpaid churn [12]

Figure 1 represents comparison of churn ratio between AT&T and Verizon. It is depicting the problem that actually how fast churn rate is being occurred and purpose of this research is solely to counter it by finding most accurate churn results.

REVIEW OF CHURN PREDICTION USING BIG DATA

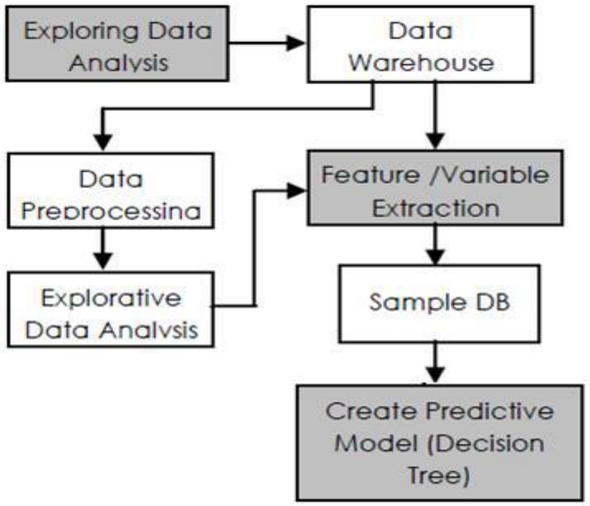

Fig 2 Data Mining Process for Telecom Churn Prediction[5] .

The process which was followed for the application of different algorithms to predict churn ratio is explained in figure 2. This diagram explains that how data is being preprocessed and populated in a database for the algorithm application. The predictive model was always changed to predict and test for the most accurate churn results.

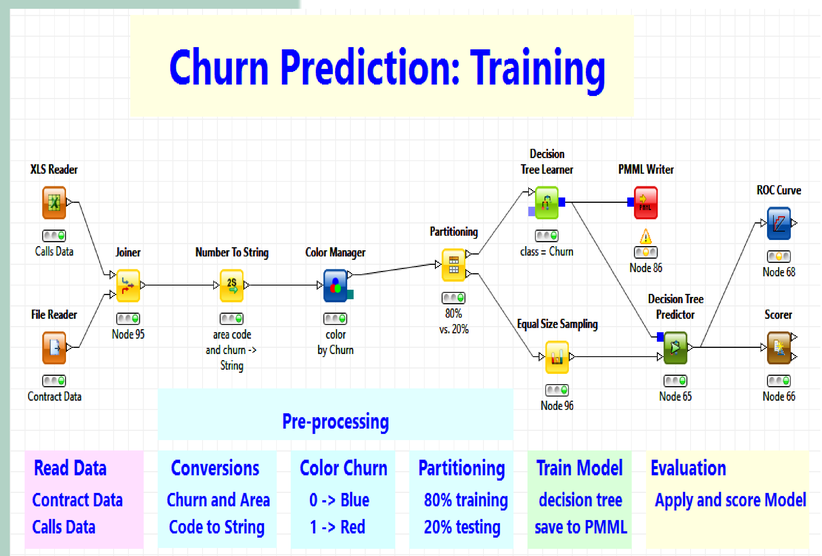

Fig 3 Churn Prediction Training Model using Calls and Contracts Data[11]

In figure 3 one churn training model is explained using decision tree algorithm. First step explains collection of data from different sources and to combine them in a single database. After that preprocessing is applied on the dataset and it is again divided into training and test data sets. Decision tree algorithm is applied on training set and the results are compared with test data set. At the end when test results were analyzed I reached to a conclusion that more accuracy could be achieved in predicting churn results but this model gave me a direction to proceed further.

DISCUSSION

My findings from this research were in the form of most accurate algorithms for churn prediction, research gap and problems due to which companies were not able to reach to a concrete solution for churn problem. Companies were not using the best data sets and algorithms for churn prediction. They were just trying to re-invent the wheel by using old strategies which became outdated as data increased. Relevance of this research with respect to market is in the form that it becomes helpful in customizing marketing strategies to improve flaws and customer treatment/retention strategies to satisfy customers so that they won't leave. **New offerings could be the use of complaints and repair data which could produce more accurate results, with the use of Deep Learning Convolution Neural Network algorithms, as compared to other algorithms and demographics data. These algorithms have the capability to deal with huge and inconsistent complaints big data sets which could be a strong basis for future research in churn prediction domain based on initial perceptions.**

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