

Customer Churn in Wiretel

Background

Telecom industry is known to suffer from customer churn. Churn, also called attrition, is a term used to indicate a customer leaving the service of one company in favor of another company. Churn rate has strong impact on the life time value of the customer because it affects the length of service and the future revenue of the company. For example, if a company has 20% churn rate annually then the average customer lifetime is 5 years; similarly a company with a churn rate of 50%, has an average customer lifetime of 2 years. It is estimated that in India the annual churn rate of customers in the telecom sector is about 25 percent¹. Telecom companies spend hundreds of dollars to acquire a new customer and when that customer leaves, the company not only loses the future revenue from that customer but also the resources spend to acquire that customer. Churn erodes profitability. Our task is to identify patterns in the data that will help to reduce the proportion of churners.

Dataset²:

The data set contains 20 predictors worth of information about 3333 customers of Wiretel, along with the target variable, churn, an indication of whether that customer churned (left the company) or not. Records of the employees are available in `churndata.xls` file. Fields in the dataset include:

- *State*: Categorical, for the 50 states and the District of Columbia.
- *Account length*: Integer-valued, how long account has been active.
- *Area code*: Categorical
- *Phone number*: Essentially a surrogate for customer ID.
- *International plan*: Dichotomous categorical, yes or no.
- *Voice mail plan*: Dichotomous categorical, yes or no.
- *Number of voice mail messages*: Integer-valued.
- *Total day minutes*: Continuous, minutes customer used service during the day.
- *Total day calls*: Integer-valued.
- *Total day charge*: Continuous, perhaps based on above two variables.
- *Total eve minutes*: Continuous, minutes customer used service during the evening.
- *Total eve calls*: Integer-valued.
- *Total eve charge*: Continuous, perhaps based on above two variables.
- *Total night minutes*: Continuous, minutes customer used service during the night.
- *Total night calls*: Integer-valued.

¹ <http://shodhganga.inflibnet.ac.in/bitstream/10603/31192/2/chpt%201.pdf>

² Churn data set. Blake, C.L. & Merz, C.J. UCI Repository of machine learning databases [kdd.ics.uci.edu/]. Irvine, CA: University of California, Department of Information and Computer Science, 1998.

- *Total night charge*: Continuous, perhaps based on above two variables.
- *Total international minutes*: Continuous, minutes customer used service to make international calls.
- *Total international calls*: Integer-valued.
- *Total international charge*: Continuous, perhaps based on above two variables.
- *Number of calls to customer service*: Integer-valued. • *Churn*: Target. Indicator of whether the customer has left the company (true or false).

What is required: Understanding the factors that explain customer churn. Can you suggest why customers are churning from Wiretel? What would your recommendation be to the top management team of Wiretel? Based on the analysis can you draft a more focused retention strategy?