

Telecom: Exploratory Data Analysis

Copyright:



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Business Context: Cell voice is one of the leading telecom providers. Customers of “Cell-Voice” are enrolled into one of 4 customer segments (customer categories) based on their billing and behavioural patterns.

1. Basic Service
2. E-Service
3. Plus Service
4. Total Service

The company is suffering from high attrition amongst its subscriber base. It wishes to launch an attrition management program which will target high risk customers. In order to understand the customers’ behaviour and drivers of churn, the marketing team would like to perform the below analysis.

The customer database contains demographic information (this information collected at the time of application) as well as Transactional details (i.e. usage, billing, enrolled plans etc). You can find the detailed variable description in next page.

Analysis-1: The marketing team would like to have high level summary of the data as follows.

1. Identify which age group (from the below groups) have highest churn and what is percentage of churn.
 - a. <=25 b. 25-35 c. 35-45 d. 45-60 e. >60
2. Summarize the data as follows at region and education level.
 - a. Number of customers
 - b. Number of churners
 - c. Percentage of churners
 - d. Average income
 - e. Average Tenure
 - f. Total revenue (Total revenue = longmon+tollmon+equipmon+cardmon+wiremon)

Analysis-2: The marketing team would like to test/verify the following claims.

1. Younger subscribers are more likely to churn as compared to older customers
2. Gender has no impact on Churn
3. Male subscribers are significantly older than females
4. Customer category has no impact on Churn
5. Customer categories show no gender bias
6. The longer a customer stays in the same address, less likely to churn
7. Marital status affects the level of education of subscriber
8. Retired customers are more loyal
9. Test the impact of the following services on Churn
 - Toll free service
 - Equipment rental
 - Calling card service
 - Wireless service
10. Is there a regional impact on churn

Data Dictionary:

Data Set	Variable Name	Description
Cell Voice-demo/Trans	CustID	Customer Unique ID
Cell Voice-demo	region	Geographic indicator
Cell Voice-demo	tenure	Months with service
Cell Voice-demo	age	Age in years
Cell Voice-demo	marital	Marital status
Cell Voice-demo	address	Years at current address
Cell Voice-demo	income	Household income in thousands
Cell Voice-demo	ed	Level of education
Cell Voice-demo	employ	Years with current employer
Cell Voice-demo	retire	Retired
Cell Voice-demo	gender	Gender
Cell Voice-demo	reside	Number of people in household
Cell Voice-Trans	tollfree	Toll free service
Cell Voice-Trans	equip	Equipment rental
Cell Voice-Trans	callcard	Calling card service
Cell Voice-Trans	wireless	Wireless service
Cell Voice-Trans	longmon	Long distance last month
Cell Voice-Trans	tollmon	Toll free last month
Cell Voice-Trans	equipmon	Equipment last month
Cell Voice-Trans	cardmon	Calling card last month
Cell Voice-Trans	wiremon	Wireless last month
Cell Voice-Trans	longten	Long distance over tenure
Cell Voice-Trans	tollten	Toll free over tenure
Cell Voice-Trans	equipten	Equipment over tenure
Cell Voice-Trans	cardten	Calling card over tenure
Cell Voice-Trans	wireten	Wireless over tenure
Cell Voice-Trans	multline	Multiple lines
Cell Voice-Trans	voice	Voice mail
Cell Voice-Trans	pager	Paging service
Cell Voice-Trans	internet	Internet
Cell Voice-Trans	callid	Caller ID
Cell Voice-Trans	callwait	Call waiting
Cell Voice-Trans	forward	Call forwarding
Cell Voice-Trans	confer	3-way calling
Cell Voice-Trans	ebill	Electronic billing
Cell Voice-Trans	loglong	Log-long distance
Cell Voice-Trans	logtoll	Log-toll free
Cell Voice-Trans	logequi	Log-equipment
Cell Voice-Trans	logcard	Log-calling card
Cell Voice-Trans	logwire	Log-wireless
Cell Voice-Trans	lninc	Log-income
Cell Voice-Trans	custcat	Customer category(Segment)
Cell Voice-Trans	churn	Churn within last month