Analysis and Design of Customer Churn Alarm Models Based on Securities Company

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Abstract. Confronting with the increasingly fierce competition in China's securities industry, Customer Relationship Management has become one of the ways for enterprises to gain competitive advantage. As a very significant part of Customer Relationship Management, the core of Customer Churn Management lies in how to analyze effective customer churn alarming. Its main business goal is to analyze the potential of churn customers, selectively hanging on to them. To begin with, modeling the customer churn alarm, we can dig out the tendency of churn customers. Secondly, modeling the churn customer segmentation is benefit to find the rules or reason of the loss of customers. On the basis of it, to identify why customers tend to churn. Finally, according to the mining results, to help marketers to develop targeted retention strategies and the strategy of enhancing value.

Keywords: Securities Company, Customer Churn, Decision Tree, Clustering

1   Introduction

In the field of customer relation management, relevant practices and researches present some change trends with great significance with increasing emergence and all-around development of big data. In 2014 coming to past, China's economy was confronted with unfavorable external environment. However, China persisted in seeking improvement in stability and had realized improvement in stability. Various industrial markets suffered from challenges in different degrees. As an integral part of the financial market, the securities market certainly attracted more and more international security companies to occupy the market. This indicates that China's security companies are confronted with more and more fierce competitions from share broking and other businesses. Such competitions impose more and higher requirements for security companies. Hence, customer relation management under the large number background is gradually lifted to the core business level of various security companies. Based on real demands of customers, security companies devote themselves to satisfy demands of different customers [1-3]. However, these companies are usually faced with another major difficulty while positioning customer demands, i.e. customer churn.

2   Data Processing

2.1   Business Description

The original data are from Xiamen securities companies in 2011, including 22151 pieces of information in the first quarter, 13792 pieces of information in the second quarter, 14783 pieces of information in the third quarter.

2.2   Data Combination

Longitudinal merger of data means a process of adding records from multiple inputs. The data in each quarter collect the transactions of each customer in the quarter. Longitudinally merge data according to the data in the first 3 quarters in 2011 stored in 3 different excel tables. This brings convenience for overall statistics of transactions of the same customer in 3 quarters and for modeling.

3   Model of Customer Churn Warning

3.1   C5.0 Data Stream

After data preprocessing of initial data, there are a total of 55 fields of inflow data flow and 7488 pieces of customer transaction records. The data flow of C5.0 model is generated.
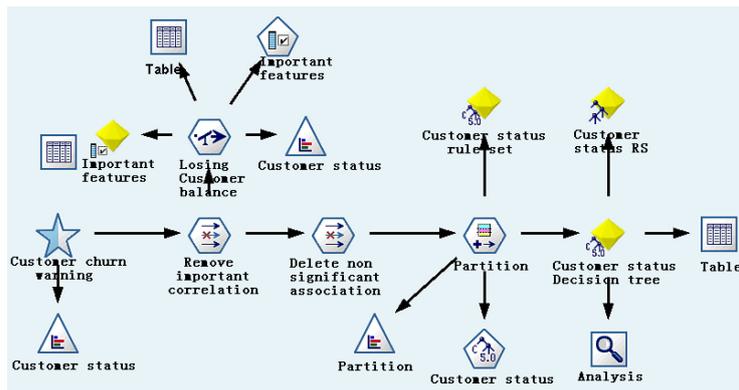

Fig. 1. Data Flow of Customer Churn Warning Model

3.2 Results

The model owns 7488 samples involved for analysis, but the samples of the training set approximate 65%. 4841 samples are used to set up the model and the remaining samples serve as the test set. The analysis conclusion of the loss law is as follows.

Customer churn will happen and the confidence degree is 0.979 in the following conditions: the negative value of total amount of balance entry and market value transfer in the first 3 quarters is greater than-316.940(61 samples) and loss rate in the first 3 quarters is less than or equal to -0.496(110 samples); the negative value of total amount of bank transfer in the first 3 quarters is greater than -0.336 (47 samples).

Customer churn will happen and the confidence degree is 1.0 in the following conditions: the negative value of total amount of balance entry and market value transfer in the first 3 quarters is greater than-316.940(4780samples); the negative value of total amount of market value transfer in the first 3 quarters is greater than -47736(4751 samples) and the mean value of profit and loss rate in the first 3 quarters is less than or equal to -0.233(8 samples).

Customer churn will happen and the confidence degree is 1.0 in the following conditions: the negative value of total amount of balance entry and market value transfer in the first 3 quarters is greater than-316.940(4780samples); the negative value of total amount of market value transfer in the first 3 quarters is greater than -47736(4751 samples); the mean value of profit and loss rate in the first 3 quarters is less than or equal to -0.496(110 samples); the negative value of total amount of bank transfer in the first 3 quarters is greater than -383.500(11 samples); the negative value of total amount of bank entry in the first 3 quarters is less than 0.010(8 samples).

4   Conclusions

Due to customer data confidentiality, customers' actual dynamic data cannot be gained. During studying customer churn warning, there is lack of estimation of the trend of transaction changes with time. Customer churn warning model has certain fundamentality function in customer churn management theory. Much work in the fields of theoretical basis and practical application is worth doing.

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