International Journal of Scientific Research in Computer Science, Engineering and Information Technology
© 2017 IJSRCSEIT | Volume 2 | Issue 2 | ISSN : 2456-3307

CPM-Churn Prediction Model for Social Networks

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ABSTRACT

Churn Prediction is very common task in data analytics. It basically consists in trying to predict those customers that are going to quit the contract. In current days, Churn had become the main aspect for social network providers. Based on the history of the customers search patterns and the activities, there is chance to find either they will leave or not. Data mining techniques are found to be more effective in churn prediction to analyze the customer behavior. The comparative study of customer behavioral result in different social networks will predict the churners effectively.

Keywords : Churn prediction model, Social Networks, R.

I. INTRODUCTION

Over the past, diverse social networks have experiencing a speedy progress. It is estimated that there will be roughly 3.13 billion active social network users wide-reaching in 2017. well-liked social networks such as Facebook, Twitter, LinkedIn, YouTube, etc. have paying attention by hundreds of millions of people to exchange a few words with each other on their platforms. Facebook, for example, has involved about 1.42 billion lively users for every month, while that of Twitter is concerning 0.3 billion. As one can see, social network is fetching essential division of people daily lives. In the current moment, social network associated big business is also in a hurry growing. As reported by Facebook annual statement, its profits in 2016 is 14.47billion US dollars and more than 90% of its profit is from marketing transactions. The basis for such a huge advertising value is as there is a very big amount of users lively conversing on Social networks. Their dynamic communication directs to remarkable quantity of opening for advertising put on view. Therefore, growing Social network energy is always the main concern for the inflexible day by day operation.

II. METHODS AND MATERIAL

1. REALISING CHURN IN SOCIAL NETWORKS

The importance that subscribers obtain since action in online digital networks is attached openly to the public investment of the network. The losses of investment through subscriber loss or considerable jump down in interest group will rash growth cycles of churn. A key surveillance of customer actions in online social network is that users, through the exclusion of spammers, make assistance to online discussion without imagining some instantaneous arrival. The main exclusion to customer churn is the switching cost concerned in moving to an additional service provider, such as the failure of fidelity position. Online society does not have switching expenses. There is a small-entrance obstacle to unite and the provider may leave without incurring an explicit penalty. More significantly, the provider may go back at any point, and may contain instantaneous contribution in numerous communities. In its most wide-ranging logic churn is apparent as an important and prolonging alteration in the movement of particular individuals and/or society.

Figure 1. Essential and Superficial feature of Churn

Factors causative to churn include essential and superficial features, see Figure 1. Essential features narrate to intrinsic behavior of the service or product or service provider. Despite the fact that much study has been carried out on how inherent features can be used to calculate budding churners, there is reasonably little follow a line of investigation on how extrinsic, collective features add to churn.

2. III. LITERATURE SURVEY

Authors in [1] proposed a phases of a general churn prediction model such as data collection, preparation, classification and prediction. Classification techniques are used for distinguishing switching customers. Clustering is used for model valuation. It concluded that SVM was the best in distinguishing churners from non-churners. A churn prediction model was proposed here works in 5 steps.

i Problem identification
ii Dataset selection
iii Investigation of data set
iv Classification
v Clustering.

Authors in [2] suggested the identification of why customers give up their relationships has been focus of marketing research for the past few years.

A decision tree based method for mining customer behavior. Development of a predictive model based on data-centric approach for detecting the early warning signs of churn, and for developing a Churn Score to identify subscribers who are likely to end their relationship with the company was discussed in [3]. Due to the vast growth of customer related data and call detail data collected and maintained by the companies in the recent years, more complicated metrics have evolved to describe customer behavior and better understand how behavioral characteristics can be linked to customer maintenance and hard performance [4]. An overview of socially grouped users and their behavioral patterns are elaborately identified [5].

To analyze and identify with group of people property, a decisive feature is to be aware of social roles of particular individuals and their power on the community. Some up to date work has identified this matter and fights to restore or enlarge the characteristic based approaches by control-based techniques, frequently by the use of information diffusion models [7], [12].

Churn has been investigated in a huge variety of business: mainly in the telecom sector [6], [7], [8], but also in the fields of banking [9], Internet service donors [10], peer to peer networks [11], online games [12], and a lot more.

In its most broad good judgment churn refers to the bursting or incomplete defection of a customer. In the telecom business, a subscriber is assumed to contain churned when he leaves one delivery service to move to another [8].

In consequent revisions, features such as these have been decayed into feature summary of the customer and customer practice in order to be capable to guess churn [8].

As a result, churn prediction is generally based on a study of the inherent features of the service, the customer and the customer-provider association [14]. Describe the service in conditions of the worth it develops through its social responsibility (See Figure 1).

3. EXISTING SYSTEM

Churn has been investigated in a large range of engineering: most commonly in the telecommunication zone, but furthermore in the fields of Internet service providers, online games, banking, P2P networks, and

much more. In its most wide-ranging sense churn refers to the complete or incomplete desertion of a customer. In earlier times, churn has been recognized as an trouble across the greater part of industry zone. In its most general sense it refers to the rate of loss of potential customers from a business support. The notice towards churn happens due to churning customers, causes decreasing of profits to industry. Appearing from big business places like telecommunications, broadcast contributors, online games designers, etc where churn is a foremost problem. If this hazard be able to be correctly predicted, advertising sectors can find the intention of customers efficiently with customized motivations to avoid them from leaving.

III. RESULTS AND DISCUSSION

1. PROPOSED SYSTEM

While churn in the telecommunication zone has been considered expansively, no study has been carried out on the wide-ranging importance and outcome of churn in online social networks and the people. Churn is important features for social network contributor, as it leads to a failure of social wealth and finally causes to service maintainability. Churn weakens the strength and capability of group of peoples to self-administrate and self-sustain. The threat to digital social networks happens not only through peoples discontinuing their action, but as well through extensively reducing action. This becomes particularly obvious where a social network service depends upon people activity, such as in discussion panel.

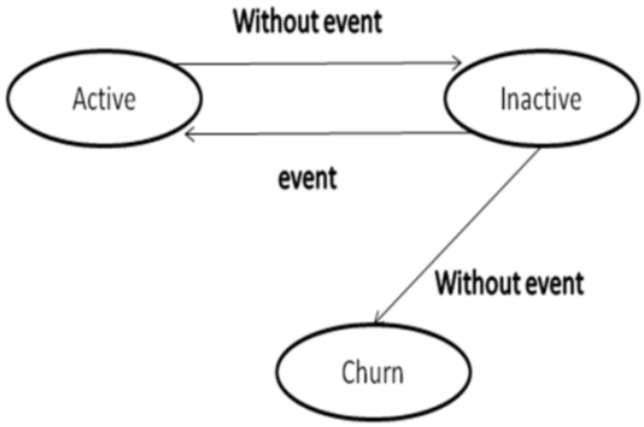

Figure 2 .Customer states in network

Active: If the customer is using the network.
Inactive: If the customer is not using the network.
Churn: If the customer is in the stage of Quitting the network
Event: If the inactive customer is using the network he moved to active mode
Without event: If the customer is not using for long time he moved to Inactive mode

2. PROPOSED APPROACH

A. Gathering customer data

Grouping past customer data Number of times Customers logged in, Time spent on network, Time since last login, customer Post their own thoughts, Customer likes in network, Send messages, Read messages, view pictures, Upload Photos, Add friends, receive text alerts, view profiles, Create or update profile, upload video, etc

B. Access Token

To view the customer data in each Social network access token is essential hence, collection of access token from Social networks Developers site must be made token is essential hence, collection of access token from Social networks Developers site must be made.

C. Churn Prediction

Now that we have a model, we want to use it to make predictions on all customers in graphical format.

3. FACEBOOK DATA MINING USING R

Registering a request with Facebook

To analyze the customer data from Facebook use Facebook Graph API Explorer & R language Firstly, Facebook developer account necessary to get started with this Facebook Graph API or We can advance your personal Facebook account to a Facebook Developer account to get token & Permissions to access customer data

Create token to Facebook R session

Facebook Authentication creates a time-consuming access token that permits R language to make

legitimate identification to the Facebook API. Save "Token" which will be used in future.

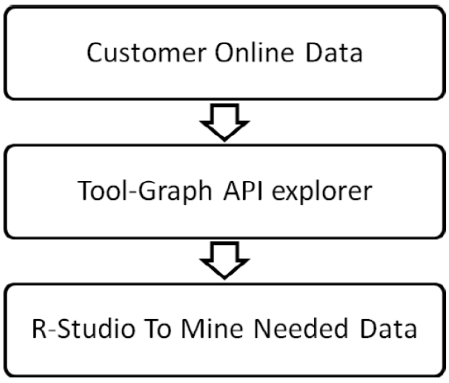

Figure 3. Work flow Diagram

At this moment the relationship is ready with the Facebook Application Program Interface with R studio. The result is produced in Graphical format which will be used to view the differences in their activities. Hence Customers data can be accessed and monitored to make decisions. Discover the appearance of a novel discussion resident: Meeting Churn for open users and growing action of additional users in the similar medium. Distinguish movement of activity from one environment to another: Discussion Churn in one medium and rising activity of the similar users in other forums. Distinguish the transformation of an individual customer. Churn on diverse levels of an application can forever be mapped to the churn of solo individuals.

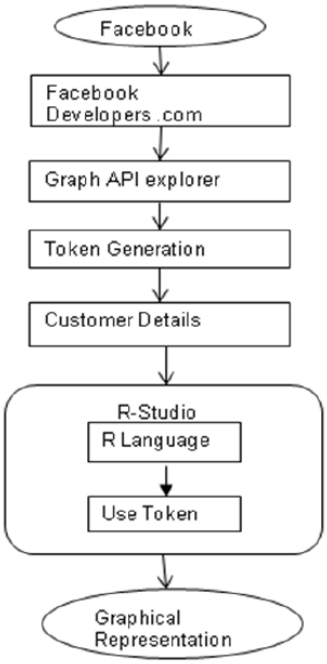

Figure 4. CPM for Facebook

IV.CONCLUSION

The results offered here give you an idea about that the proposed churn prediction model is suitable for discovering a wide range of churners that are present in social networks. This facilitates the recognition and prediction of churners from social networks for an extensive collection of purposes and to possibly eradicate risks.

On the other hand, the description of churn prediction in social Networks and risks has not been widely studied. This paper tries to fill this gap. In this perspective, Churn prediction model using R language to show the graphical representation has been made to stop the churners from social networks.

V. REFERENCES

[1]. Liao, Shu-Hsien, Pei-Hui Chu, and Pei-Yuan Hsiao. "Data mining techniques and applications–A decade review from 2000 to 2011."

[2]. N.Hashmi, N. ButtandM.Iqbal. Customer Churn Prediction in Telecommunication A Decade Review and Classification. International Journal of Computer Science Vol.10(5),2013.

[3]. V. Umayaparvathi, K. Iyakutti,, "Attribute Selection and Customer Churn Prediction in Telecom Industry", Proceedings of the IEEE International Conference On Data Mining and Advanced Computing, 2016.

[4]. V. Umayaparvathi, K. Iyakutti, "Applications of Data Mining Techniques in Telecom Churn Prediction", International Journal of Computer Applications, Vol. 42, No.20, 2012.

[5]. "A proposed churn prediction model" IJERA 2, 2012.

[6]. M. Mozer, R. H. Wolniewicz, D. B. Grimes, E.Johnson, and H. Kaushansky, "Churn reduction in the wireless industry," in NIPS, 1999, pp. 935–941.

[7]. K. Dasgupta, R. Singh, B. Viswanathan, D. Chakraborty, S. Mukherjea, A. A. Nanavati, and A. Joshi, "Social ties and their relevance to churn in Mobile telecom networks," in EDBT '08, 2008.

[8]. H. Hwang, T. Jung, and E. Suh, "An ltv model and customer segmentation based on customer value: a case study on the wireless

telecommunication industry," Expert Syst. Appl., vol. 26, no. 2, pp. 181– 188, 2004.
[9]. Y. Xie, X. Li, E. W. T. Ngai, and W. Ying, "Customer churn prediction using improved balanced random forests." Expert Syst. Appl., vol. 36, no. 3, pp. 5445–5449, 2009.
[10]. B. Q. Huang, M. T. Kechadi, and B. Buckley, "Customer churn prediction for broadband internet services." in DaWaK, ser. Lecture Notes in Computer Science, vol. 5691, 2009, pp. 229–243.
[11]. O. Herrera and T. Znati, "Modeling churn in P2P networks," in Annual Simulation Symposium. IEEE Computer Society, 2007, pp. 33–40.
[12]. J. Kawale, A. Pal, and J. Srivastava, "Churn Prediction in MMORPGs: A Social Influence Based Approach," in CSE '09, 2009, pp. 423–428.
[13]. S. M. Keaveney, "Customer switching behavior in service industries: An exploratory study," The Journal of Marketing, vol. 59, no. 2, pp. 71–82, 1995.
[14]. J. Burez and D. V. den Poel, "Handling class imbalance in customer churn prediction," Expert Syst. Appl, vol. 36, no. 3, pp. 4626–4636, 2009