Global Journal of Pure and Applied Mathematics.
ISSN 0973-1768 Volume 12, Number 2 (2016), pp. 1293-1298

http://www.ripublication.com

A QUERY BASED FRIEND RECOMMENDATION SYSTEM WITH DE-TROP MESSAGE DETECTION

Miss. Sindhu Veeramani[1*] and Mrs. Lydia Jeba[2]

[1]P.G Student, Department of Computer Science and Engineering, Sathyabama University, Chennai, India. 600119.

[2]Assistant Professor, Department of Computer Science and Engineering, Sathyabama University, Chennai, India. 600119.

ABSTRACT

Existing social media networks suggests friends to the account holder based on their friend list, which is not always suitable for the account holder's interest in real life. In this paper, we proposed a query based recommendation system with de-trop message detection using k-means algorithm which analyses the lifestyle of the user. If the lifestyle matches with the account holder, then the system suggests the user to the account holder. The lifestyle can be analysed using several parameters such as monitoring the daily routine activities, habits, attitude etc. The similarities between the account holder and the users are extracted by using k-means algorithm. The system also incorporates a feedback mechanism for accurate and efficient friend suggestions. The system monitors the user and if any de-trop activities are reported then the server blocks the users immediately. This ensures security and confidentiality to the account holder.

Keywords: Daily Routine Activities (lifestyle), Social Media Networks, Stemming Algorithm

1. INTRODUCTION

In earlier days, People had face to face interaction with their neighbors, co-workers etc. Nowadays with technology development, several social media networks are developed for communication between people throughout the world. A social media network is a platform to build a social relation among the people who share similar

interests, activities, background or real life connection. Some of the social media networks are Facebook, Twitter, Google+, LinkedIn, Flickr etc. Facebook ranks second in the world's social media networks. Through the social media networks, people can post information about themselves. The information can include hobbies, daily routine activities, lifestyle, pictures, place where they spent their time luxuriously etc. The user activities include walking, jogging, sleeping, playing, eating etc. The user lifestyle specifies shopping, profession, community etc. Normally, in the social media network's friends are chosen based on the friend list such as neighbors, co-workers, schoolmates, college mates etc. This type of suggestion makes the account holder uncomfortable. The account holder finds it difficult to identify the people with similar interests. To overcome this problem, lifestyle based friend suggestion system is developed. This system also has some flaws like misbehaving activities in due course of time. This behavior troubles the account holder. To overcome this problem, the server monitors the system, if any de-trop activities are reported then the server blocks the user immediately. This ensures that the account holder is secure and comfortable.

This paper is systematized into following sections: Section 2 discusses the literature survey of various journals, conferences. Section 3 describes the overview of Buddy-Finder system. In Section 4, we elaborate the user's lifestyle interest recognizing. Section 5 provides the rating of the users based on k-means and stemming algorithms. Section 6 describes the process of de-trop message detection. Section 7 provides feedback system.

2. LITERATURE SURVEY

To recommend the product (e.g. Movies, gifts, accessories, books, games etc) to the user which is currently popular, Amazon [1] suggests a user based-user prior search. It allows the users to fulfill their needs by spending less time on searching the products. Bian and Holtzman [2] proposed Matchmaker-an online friend suggestion based on personality matching and collaborative filtering that helps to match the people with similar TV-characters. Kwon and Kim [3] presented a friend recommendation method using physical and social context that combines both spiritual and social friendship. But the author fails to explain how the social and spiritual information from the friend is obtained. Z.Wang , J.Liao and Q.Cao [4] proposed Friendbook, A novel semantic based friend recommendation system for social networks which suggests a friend based on their lifestyle, but it fails to provide any security after the recommendation. EasyTracker [5] helps to understand the purpose of GPS trace in the vehicle which accurately constructs routes and schedules. U.Alhaddad and Dr.W.A.Jedaibi [6] proposed the security metrics in social networking application. The author describes the pros and cons of the social networks and way to improve security and safety measures in social networks. K.Farrahi and Gatica Perez [7] proposed that the people interaction data obtained by Smartphone Bluetooth sensor data is combined with people location data, obtained by mobile cell tower, which is used to extract the data about people activities. Reality mining [8] describes the benefit of Bluetooth enabled Smartphone.

3. SYSTEM OUTLINE

In this section, we give an outline of the buddy-finder system. Figure1. Illustrates the system architecture of buddy-finder which adopts the client server mode.
On the client side, the account holder and the users play a vital role. Initially each user and the account holder feed their basic data's such as their name, Date of Birth, mail id and their daily routine activities. These are stored in the server database. We use MYSQL as the low level data storage platform.

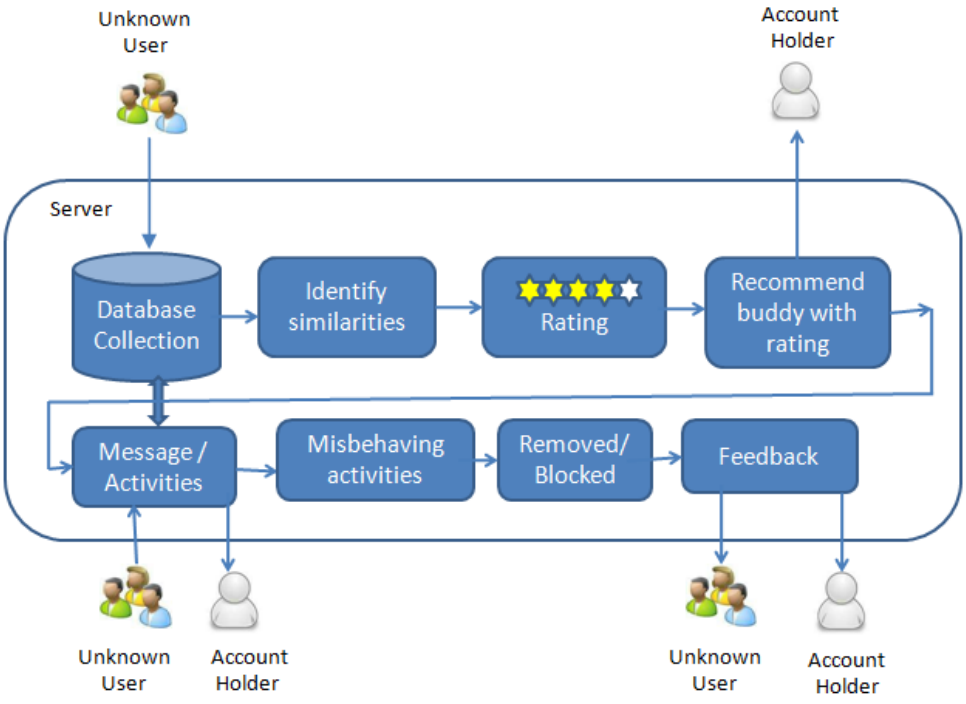

Figure 1: System Architecture for Buddy-Finder

On the server side, we have proposed five modules to execute the goal of friend suggestion system. The *database collection* module is used to gather data about the user. The data collection can be approached in three ways. First, the user can feed their likes and dislikes into database directly during the signup. Second, the user interests are identified by gathering data from the post which he/she likes. Third, by using mobility (i.e.) through GPS we gather data like ,how the user spend their spare time example, in theatres, shopping malls, beach, restaurants, resorts, parks, Holy places etc. The *Interest recognizing* module identifies the similar interests of the user. The *Rating* module is used to arrange the users according to their ranks and suggests the users to the account holder based on their ranks. The *De-Trop Message Detection* module detects the misbehaving activities of the user. The *Feedback* module delivers the feedback of the user and the account holder.

4. LIFESTYLE INTEREST RECOGNIZING GRAPH

Each user has their own lifestyle. A graph is constructed to form a relationship between the users based on the lifestyle.

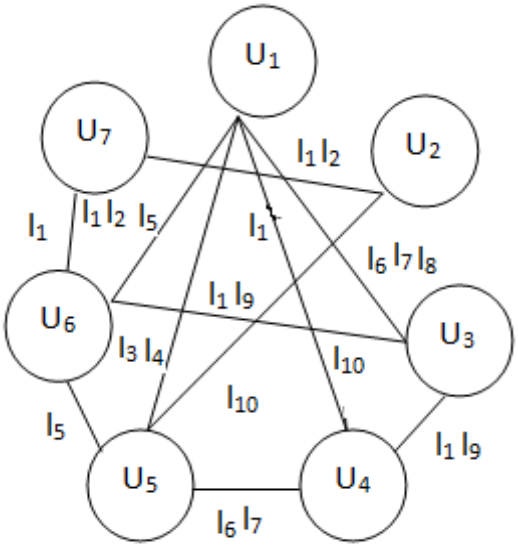

Figure 2 : Interest Recognizing Graph for 7 users

$$\mathbf{S}\,(\boldsymbol{U_i}\,,\boldsymbol{U_j}) = \boldsymbol{U_i(L_i)} \cap\ \boldsymbol{U_j(L_i)}$$

Let S (U_i , U_j) be the similar lifestyle of the user i and user j, $U_i(L_i)$ be the lifestyle of user i and $U_j(L_i)$ be the lifestyle of user j.

A graph consists of a set of vertices and edges. Each vertex represents the user U_i and each edge represents the lifestyle of the user L_i. Figure 2 shows the Interest Recognizing Graph for 7 users.

Each user has his own interest. Several users posses similar interests in their daily routine activities. For example, consider any two users U_1 and U_2. The user U_1 is interested in playing table tennis, spend their spare time in shopping mall with his / her friends, watching movie in an expensive theatre, reading books, etc. and the user U_2 is interested in social service, pets, watching movie in expensive theatre, playing table tennis, spend spare time with his/her friends. Here the user U_1 and user U_2 have some similar interests like playing tennis, watching movie in expensive theatre etc. This helps to generate the interest recognizing graph between the user U_1 and the user U_2.

5. RATING OF THE USER

Rating module helps to organize the user based on their interest in lifestyle. Rating of the user is done by identifying similar interest between the user and the account holder.

Input: The user U_i, the suggesting coefficient α.
Output: Suggested Buddy List BL_i

1. Initially $BL_i \leftarrow 0$, Q $\leftarrow 0$;
2. Extract U_i 's lifestyle LS_i using k-means concept;
3. For each lifestyle T_k probability of $LS_i \neq 0$ do
4. Store T_k into Q;
5. End for
6. For each user $U_j \notin$ Q do
7. S $(U_i, U_j) \leftarrow 0$;
8. End for
9. For each user $U_j \in$ Q do
10. $Rank_{U_i}(U_j) = \alpha(\text{S}(U_i, U_j)) + (1\text{-}\alpha)\, r_j$;
11. End for
12. Rank all the user based on $Rank_{U_i}(U_j)$;
13. Suggestion based on ranks;
14. Communication between the user U_i and U_j;
15. De-trop message detection is extract using stemming algorithm;
16. If U_j send de-trop message to U_i then
17. Q delete U_j and send feedback to U_i andU_j;
18. Else
19. Communication process takes place;
20. End if

Algorithm 1: Computing Rating and De-trop message detection algorithm

6. DE-TROP MESSAGE DETECTION

De-trop message detection is the process of finding misbehaviouring users. The server monitors the user after friend confirmation is made between the user and the account holder. If the user sends any unnecessary message to the account holder, the server detects the message by using stemming algorithm.

7. FEEDBACK MECHANISM

Feedback mechanism provides an automatic alert notification to the account holder, when an de-trop message is detected from the user. This helps the account holder to be constantly aware of the de-trop message and the user who sends it.

8. CONCLUSION

In this paper, we have proposed a Query based Friend Recommendation system with De-trop Message Detection using K-Means Algorithm. The existing system suggests friends based on their lifestyle. But it fails to monitor the user after suggestions. The

account holder may feel uncomfortable, if any subsequent misbehavioural activities are reported. This paper overcomes the above drawback and makes the account holder more comfortable and secure.

REFERENCE

[1] Amazon. (2014). [Online]. Available: http://www.amazon.com

[2] L. Bian and H. Holtzman, "Online friend recommendation through personality matching and collaborative filtering," in Proc. 5th Int. Conf. Mobile Ubiquitous Comput., Syst., Services Technol., 2011, pp. 230-235

[3] J. Kwon and S. Kim, "Friend recommendation method using physical and social context," Int. J. Comput. Sci. Netw. Security, vol. 10, no. 11, pp. 116-120, 2010.

[4] Z.Wang, J.Liao, Hairong Qi, Zhi Wang,"FriendBook: A Semantic-Based Friend Recommendation System for Social Networks", IEEE trans on mob comp, vol.14, no.3, pp. 538-551, Mar.2015

[5] J. Biagioni, T. Gerlich, T. Merrifield, and J. Eriksson, "EasyTracker: Automatic transit tracking, mapping, and arrival time prediction using Smartphones," in Proc. 9th ACM Conf. Embedded Netw. Sensor Syst., 2011, pp. 68-81

[6] U.Alhadded and Dr. W.A.Jedaibi"Security Metrics in Social Networking Application"proc.IJSTR, vol: 2, issue: 5, May 2015pp.110-118

[7] K. Farrahi and D. Gatica-Perez, "Probabilistic mining of sociogeographic routines from mobile phone data," IEEE J. Select. Topics Signal Process, vol. 4, no. 4, pp. 746-755, Aug. 2010.

[8] N. Eagle and A. S. Pentland, "Reality mining: Sensing complex cocial systems," Pers. Ubiquitous Comput., vol. 10, no. 4, pp. 255-268, Mar. 2006

[9] Y. Zheng, Y. Chen, Q. Li, X. Xie, and W.-Y. Ma, "Understanding transportation modes based on GPS data for web applications," ACM Trans. Web, vol. 4, no. 1, pp. 1-36, 2010.

[10] A. D.Sarma, A. R.Molla, G.Pandurangan, and E.Upfal. Fast distributed computation. Springer Berlin Heidelberg, pages 11-26, 2013

[11] Z. Wang, C. E. Taylor, Q. Cao, H. Qi, and Z. Wang. Demo: Friendbook: Privacy Preserving Friend Matching based on Shared Interests. Proc. of ACM SenSys, pages 397-398, 2011.

[12] K. Farrahi and D. Gatica-Perez. Discovering Routines from Largescale Human Locations using Probabilistic Topic Models. ACM Transactions on Intelligent Systems and Technology (TIST), 2(1), 2011.

[13] Donald Steiny, ― Unsocial Networks-Restoring the Social in Social Networks‖. Proceedings of the 42nd Hawaii International Conference on System Sciences-2009: pp.1-10

[14] X. Yu, A. Pan, L.-A. Tang, Z. Li, and J. Han, "Geo-friends recommendation in GPS-based cyber-physical social network," in Proc. Int. Conf. Adv. Social Netw. Anal. Mining, 2011, pp. 361-368.