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# A Semantic based Friends Recommendation System using Socio-Routine

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***Abstract:*** ***Every day we are overwhelmed with many choices and options, simultaneously recommendation systems have gained popularity in providing suggestions. Today every web application has its own recommendation system. Whereas, Recommendation systems for social networks are different from other kinds of system, since the item here are rational human beings rather than goods. Hence, the 'Social' factor has to be accounted for when making a recommendation. We considered one of the most popular social Networking sites that is Facebook as it offers impressive features. Here, we are mainly focusing on recommending friend with similar interest which is different among all the existing ones where Facebook uses social graph a friend of friend approach to recommend friend which may not be the most appropriate to reflect a user's preferences on friend selection in real life. And Netflix, Foursquare which all focus on recommending items. Hence we proposed framework Friend-tome, a novel semantic based friend recommendation system for social networks. In this paper, a social network is formally represented and taking text mining as a perspective, we have proposed a framework that will recommend friend using an efficient Algorithm. Here, we have analysed the structure of Facebook and considering the activities of individuals got some values & computed the score of each individual based on which we have, analysed and computed to show the percentage of similarity of life styles between users, and recommends friends to users if their life styles have high similarity.***
***Keywords: socio-routine, text mining, friend recommendation, social networks, friend, life style.***

## I. INTRODUCTION

Social networking sites have enormous data set of users, according to the current survey. Every individual social networking site makes record of the activities of users such as his/her likes; what user likes? , what user is doing? , what is user's hobby? Etc. and it has gained main area of focus in understanding the user behavior, One of the best example we might consider is FaceBook. Hence here, in our approach we are making use of user life style as major concern for recommending friends and build relationship among the people with similar interest and help to share information or build communication among likely minded people.

## II. EXISTING SYSTEM

In Collaborative and structural recommendation of friends using weblog-based social network analysis paper [1], they address the problem of link recommendation in weblogs and similar social networks. First, they present an approach based on collaborative recommendation using the link structure of a social network and content-based recommendation using mutual declared interests. Next, they describe the application of this approach to a small representative subset of a large real-world social network: the user/community network of the blog service LiveJournal [1]. They then discuss the ground features available in LiveJournal's public user information pages and describe some graph algorithms for analysis of the social network. These are used to identify candidates, provide ground truth for recommendations, and construct features for learning the concept of a recommended link. Finally, they compare the performance of this machine learning approach to that of the rudimentary recommender system provided by LiveJournal. In A Probabilistic Approach to Mining Mobile Phone Data Sequences [2], they present a new approach to address the problem of large sequence mining from big data. The particular problem of interest is the effective mining of long sequences from large-scale location data to be practical for Reality Mining applications, which suffer from large amounts of noise and lack of ground truth. To address this complex data, they propose an unsupervised probabilistic topic model called the distant n-gram topic model (DNTM). The DNTM is based on Latent Dirichlet Allocation (LDA), which is extended to integrate sequential information [2]. They define the generative process for the model, derive the inference procedure, and evaluate our model on both synthetic data and real mobile phone data. They consider two different mobile phone datasets containing natural human mobility patterns obtained by location sensing, the first considering GPS/wifi locations and the second considering cell tower connections. The DNTM discovers meaningful topics on the synthetic data as well as the two mobile phone datasets. Finally, the DNTM is compared to LDA by considering log-likelihood performance on unseen data, showing the predictive power of the model. The results show that the DNTM consistently outperforms LDA as the sequence length increases.

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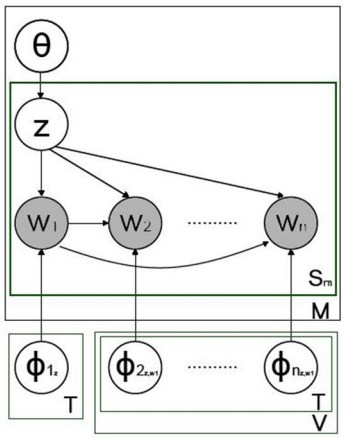


Fig.1: Graphical model of the Distant N-Gram Topic Model (DNTM).

In Friendbook: A Semantic-based Friend Recommendation System for Social Networks paper [5], by taking advantage of sensor-rich smartphones, Friendbook discovers life styles of users from user-centric sensor data, measures the similarity of life styles between users, and recommends friends to users if their life styles have high similarity. Inspired by text mining, they model a user's daily life as life documents, from which his/her life styles are extracted by using the Latent Dirichlet Allocation algorithm [5]. They further propose a similarity metric to measure the similarity of life styles between users, and calculate users' impact in terms of life styles with a friend-matching graph. Upon receiving a request, Friendbook returns a list of people with highest recommendation scores to the query user. Finally, Friendbook integrates a feedback mechanism to further improve the recommendation accuracy. They have implemented Friendbook on the Android-based smartphones, and evaluated its performance on both small-scale experiments and large-scale simulations. The results show that the recommendations accurately reflect the preferences of users in choosing friends.

## III. SYSTEM REQUIREMENTS

*A. Hardware Requirements*

*1)* Processor : - Dual Core or more.
*2)* RAM : - 1GB
*3)* Hard Disk : - 40 GB
*4)* Display Type : - SVGA Color Monitor
*5)* Keyboard : - Enhanced 104 Standard
*6)* Mouse : - PS/2 2Button, USB

*B. Software Requirements*

*1)* Operating System : windows 7, windows 8 and Upper version
*2)* Web Browser : IE6 or upwards, Google Chrome, Mozilla Firefox
*3)* Web Server : IIS 7.0
*4)* IDE Tools : Microsoft Visual Studio
*5)* Front End : Asp.Net
*6)* Database/Back End : Microsoft SQL Server
*7)* Language Structure : C#

## IV. PROPOSED WORK

We create a web application like facebook which is compatible with both desktop and mobile. The user can make a registration and login into it. The user can search the another user by name, city and interest also. In this paper, we propose a technique using which we can get similarity metric to measure the similarity of life styles between users, and calculate users' impact in terms of life styles with a friend-matching graph. Upon receiving a request, Friendbook returns a list of people with highest recommendation scores to the query user.

Our project has different modules as such,

A. *Modules*

1) *User Registration:* The user can registered into the system, by entering his personal details such as name, email id, mobile number, address, city, date of birth, username and password. The use can also select the profile photo to upload in the system. After successful registration, the user can login into the system by using same username and password which is used during the registration process.
2) *Life Style Information Gathering:* Life styles and activities are reflections of daily lives at two different levels where daily lives can be treated as a mixture of life styles and life styles as a mixture of activities. This is analogous to the treatment of documents as ensemble of topics and topics as ensemble of words. By taking advantage of recent developments in the field of text mining, we model the daily lives of users as life documents, the life styles as topics, and the activities as words. Given "documents", the probabilistic topic model could discover the probabilities of underlying "topics". Therefore, we adopt the probabilistic topic model to discover the probabilities of hidden "life styles" from the "life documents". Our objective is to discover the life style vector for each user given the life documents of all users.
3) *Activity Recognition:* We need to first classify or recognize the activities of users. Life styles are usually reflected as a mixture of motion activities with different occurrence probability. Generally speaking, there are two mainstream approaches: supervised learning and unsupervised learning. For both approaches, mature techniques have been developed and tested. In practice, the number of activities involved in the analysis is unpredictable and it is difficult to collect a large set of ground truth data for each activity, which makes supervised learning algorithms unsuitable for our system. Therefore, we use unsupervised learning approaches to recognize activities.
4) *Friend-matching Graph Construction:* To characterize relations among users, in this section, we propose the friend-matching graph to represent the similarity between their life styles and how they influence other people in the graph. In particular, we use the link weight between two users to represent the similarity of their life styles. Based on the friend-matching graph, we can obtain a user's affinity reflecting how likely this user will be chosen as another user's friend in the network. We define a new similarity metric to measure the similarity between two life style vectors. Based on the similarity metric, we model the relations between users in real life as a friend-matching graph. The friend-matching graph has been constructed to reflect life style relations among users.
5) *User Impact Ranking:* The impact ranking means a user's capability to establish friendships in the network. In other words, the higher the ranking, the easier the user can be made friends with, because he/she shares broader life styles with others. Once the ranking of a user is obtained, it provides guidelines to those who receive the recommendation list on how to choose friends. The ranking itself, however, should be independent from the query user. In other words, the ranking depends only on the graph structure of the friend-matching graph, which contains two aspects: 1) how the edges are connected; 2) how much weight there is on every edge. Moreover, the ranking should be used together with the similarity scores between the query user and the potential friend candidates, so that the recommended friends are those who not only share sufficient similarity with the query user, and are also popular ones through whom the query user can increase their own impact rankings.

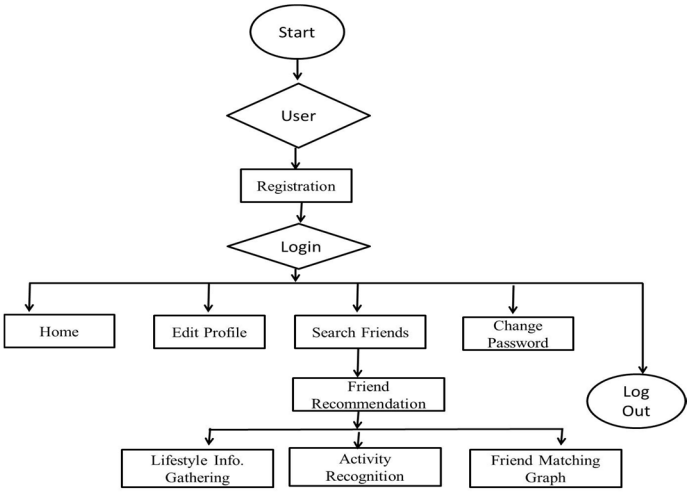


Fig2. illustrating the working structure of project

## V. CONCLUSIONS

This paper focuses on working of the friend recommendation system. The recommendation is based on four main components such as lifestyle information gathering, activity recognition, friend matching graph and user impact ranking. We specially focused on socio routing process for getting the proper recommendations of friends.

## VI. ACKNOWLEDGEMENT

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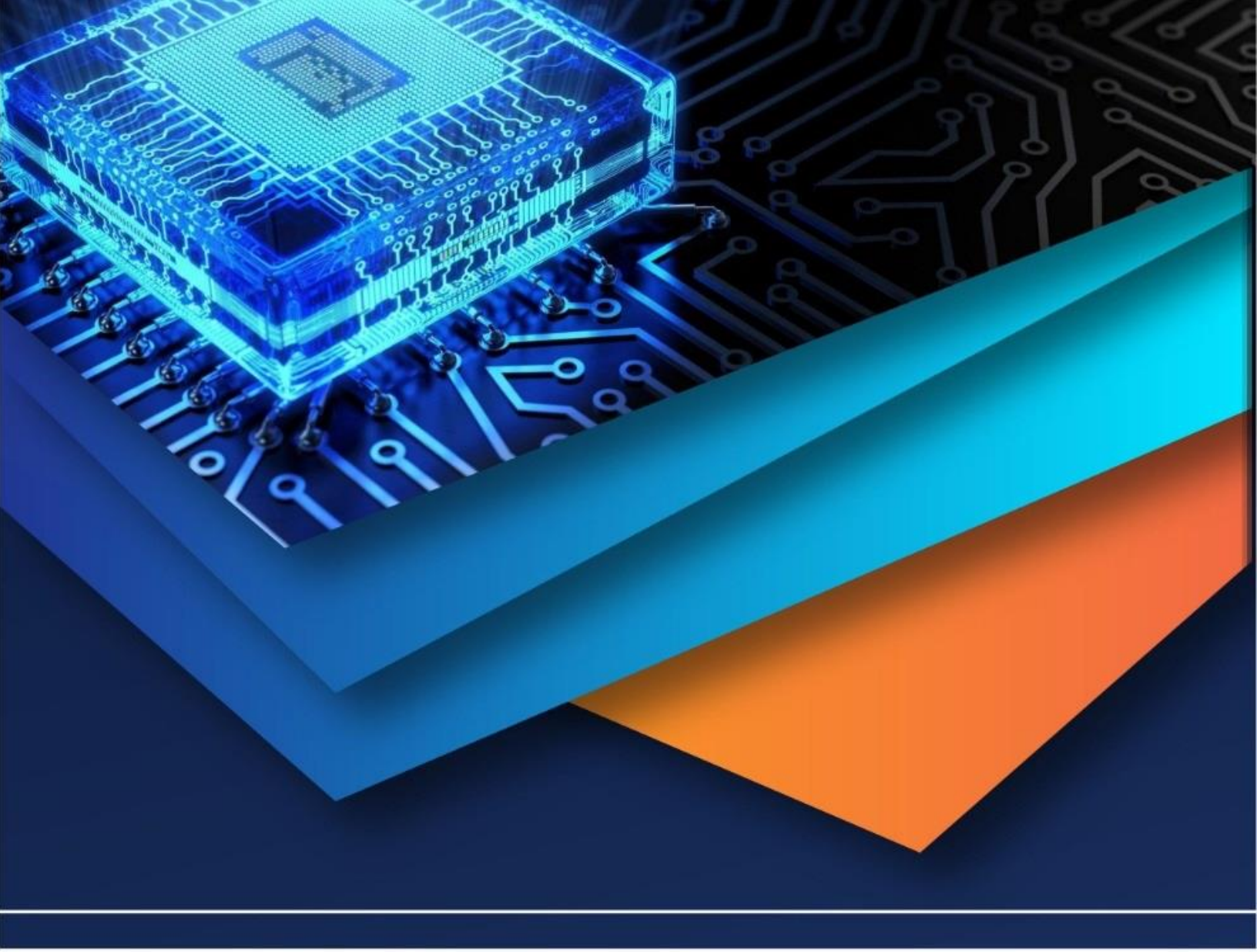

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