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Implementation of Friendbook: A Recommendation System for Social Networks

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Abstract

A recommendation system is a software program which endeavors to limit determinations for clients in light of their communicated inclinations, past bahavior, or other information which can be mined about the client or different clients with similar interests. Existing social networking services recommend friends to users based on their social graphs, which may not be the most fitting to mirror a client's inclinations on companion choice, in real time. We present Friendbook, a novel semantic-based friend recommendation system for interpersonal organizations, which prescribes companions to clients in view of their life style rather than social graph. Friendbook finds life style of clients and measures the likeness of ways of life amongst clients, and prescribes companions to clients if their ways of life have high closeness. Inspired by achievements in the field of text mining, we model the daily life as life documents, from which his/her life styles are extracted by using the Latent Dirichlet Allocation algorithm. We utilize the probabilistic topic model to extract way of life data of clients. We propose a one of a kind similarity metric to portray the similarity of clients as far as life styles and after that prescribe companions to clients in light of their life styles. LDA algorithm is also useful to calculate the probability for each matched users. This system recommends the friends appropriately as compare to other state of art systems.

Keywords: *Content Based Filtering(CBF),Collaboration Filtering(CF), Latent Dirichlet Allocation (LDA),Recommendation Algorithm(RA)*

INTRODUCTION

Twenty years back, people normally made companions or friends with other people who live or work near themselves, for example, neighbors or associates. We call companions made through this customary mold as G-friends, which remains for geographical area based friends since they are affected by the land removes between each other. With the quick advances in social networks, services, for example, Facebook,Twitter and Google+ have given us progressive methods for making friends. As per Facebook measurements, a client has a normal of 130 friends, maybe bigger than some other time ever.

One challenge with existing social networking services is how to recommend a good friend to a user. Most of them rely on pre-existing user relationships to pick friend candidates.For example, Facebook relies on a social link analysis among those who already share common friends and recommends symmetrical users as potential friends [1]. Unfortunately, this approach may not be the most appropriate based on recent sociology findings .According to these studies, the rules to group people together include:1) habits or life style; 2) attitudes; 3) tastes; 4) moral standards;5) economic level; and 6) people they already know. Obviously, manage #3 and administer #6 are the standard elements considered by existing

recommendation systems. Rule #1,although likely the most natural, isn't broadly utilized on the grounds that clients' life style are troublesome, if certainly feasible, to catch through web activities. Or maybe, life styles are typically firmly associated with daily routines and activities.

Therefore, in the event that we could assemble data on clients' every day routines and activities, we can abuse rule #1 and recommend friends to people based on their similar life styles. This recommendation mechanism can be deployed as a standalone app on smartphones or as an add-on to existing social network frameworks [1]. In both cases, Friendbook can help mobile phone users find friends either among strangers or within a certain group as long as they share similar life styles [1]. In our regular day to day existences, we may have many activities, which frame significant groupings that shape our lives.

RECOMMENDATION SYSTEM

Recommendation systems have received significant attention from both academia and industry since the mid-1990s when collaborative filtering was introduced. Recommendation systems are usually classified into two categories: content-based recommendations and collaborative filtering based recommendations [3].

Content-based filtering recommends items that are similar to ones, the active user preferred in the past. Content-based recommendation systems recommend an item to a user based on item description and user's interests and are useful recommending web pages, news articles, items forsale, etc [3] .

Traditional collaborative filtering recommends items to an active that have been rated highly by users who are similar to the active user. Collaborative filtering based systems recommend items that other similar users have preferred.Collaborative recommendation computes the similarity to other users rather than to other items . Several hybrid recommendation systems combine both collaborative and content-based methods [3].

EXISTING SYSTEM

As of late some recommendation system that attempt to recommend thing like Books, music, motion picture thus no are ending up increasingly well known. For example Amazon recommends the item to client in light of their past visites. Rotten Tomatoes recommend movies to a user based on the user’s previous ratings and watching habits. Researchers proposed some other recommendation mechanisms. For example, Bian and Holtzman proposed MatchMaker in this it recommend friend to user based on personality match using collaborative filtering [3]. Kown and Kim proposed Friend recommendation framework where suggestion depends on Social and Physical setting. Be that as it may, creator did not indicated what social and physical setting is and how to acquire those data.

Geographically related friends recommendation is proposed by YU et al in this recommendation mechanism it combines both GPS information and social network structure Hsu et al. studied the problem of link recommendation in weblogs and similar social networks, and proposed an approach based on collaborative recommendation using the link structure of a social network and content-based recommendation using mutual declared interests [3]. Gou et al. proposed a visual framework, SFViz, to help clients to investigate and discover friends intuitively under the setting of interest, and detailed a contextual analysis utilizing the framework to investigate the recommendation of friends in light of

people's tagging behaviors in a music group.

Life style modelling

As expressed in Section 1, life styles and activities are impressions of everyday lives at two distinct levels where day by day 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". In probabilistic topic models, the frequency of vocabulary is particularly important, as different frequency of words denotes their information entropy variances. Following this observation, we propose the "bag-of-activity" model (Fig. 1) to replace the original sequences of activities recognized based on the raw data with their probability distributions [1]. From that point, every client has a bag-of-activity portrayal of his/her life document, which involves a mixture of activity words.

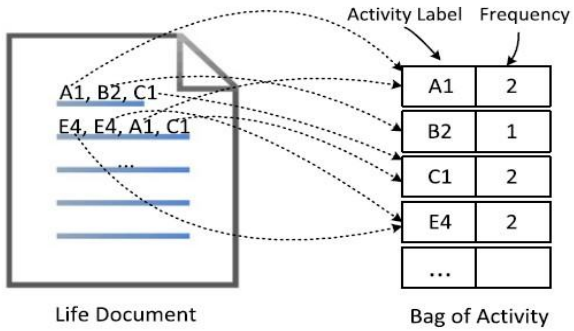

Fig.1. *Bag-of-activity modeling for life document.*

Life Style Feature Extraction Using LDA

It is moreover noteworthy that since the proposed framework utilizes unsupervised learning strategies to see activities and the topic model to discover ways of life, the physical ramifications of surmised "activities" or "topics" are unknown to us. As said in, such noteworthiness can be surveyed through the extra advance of standing out the theme enactments from the genuine structure of the subject's day and afterward distinguishing points that relate to conceivable day by day schedules. The LDA estimation taking a corpus (an arrangement of archives) as input, the program utilizes EM algorithm induces the hyper parameters. With the hyper parameters process point extent for each report.

PROPOSED SYSTEM

Fig. 2. shows architecture of our system. We maintain user interest history that means we collect data. By considering collected data and life style analysis we generate similarity metric and indexing user's life style. By getting output of similarity metric, we apply algorithms (Latent Dirichlet Allocation LDA, Collaborative Filtering, Content based Filtering) and also generate friend matching graph. By considering all this, we finalize recommend friends module to current user.

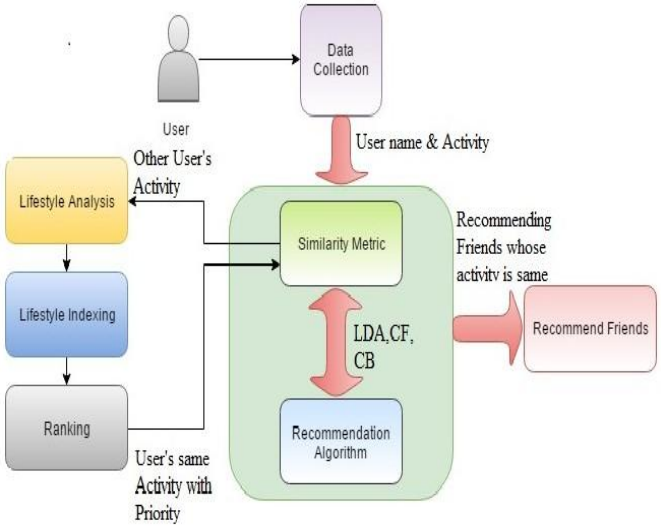

Fig. 2. *System Architecture of Friendbook*

LITERATURE SURVEY

Table I. *Literature Survey Table*

No	Paper Title	Authors	Publication	Contribution
1.	Friendbook: A Semantic-Based Friend Recommendation System for Social Networks.	Zhibo Wang, Jilong Liao, Qing Cao,Hairong Qi, Senior, and Zhi Wang	IEEE Transactions On Mobile Computing, March 2015	Base Paper
2.	Incremental Iterative Time Spent Based Ranking Model For Online Activity based Friend-Group Recommendation Systems.	Sachin V Josef, MinuLalitha Madhavu	IEEE,2015	LDA Algorithm
3.	Friend Recommendation Through Semantic Based Matching And Collaborative Filtering System In Social Networks.	Varun Jain D J, Dr.M Siddappa	IJACCCS,2015	Collaborative Filtering Algorithm
4.	A Survey on Friend Recommendation System	Jyoti Sharma,Pinky Tanwar	IJARIIE, 2016	Content Based Algorithm
5.	ndbook Recommendation System	Harsha Chaudhari,Nilam Darekar,Vishal Raut,Hrashal Wani,Prof.Darshika Lothe	IERJ,2016	ensity Based Algorithm
6.	Friend Recommendation System for Online Social Networks	Dagadu M. Jadhavar , V. R. Chirchi	IJCA, 2016	Probability Distribution Algorithm

In this paper, we have taken 6 papers on the basis of the Implementation of Friendbook Recommendation System for Social Networks. The first(base paper) is "Friendbook: A Semantic Based Friend Recommendation System for Social Networks" Contribution of this paper is Idea of Friendbook Recommendation System. The second paper is " Incremental Iterative Time Spent Based Ranking Model For Online Activity based Friend-Group Recommendation Systems

". Contribution of this paper is LDA Algorithm. The third paper is" Friend Recommendation Through Semantic Based Matching And Collaborative Filtering System In Social Networks". Contribution of this paper is Collaborative filtering algorithm. The forth paper is "A Survey on Friend Recommendation System". Contribution of this paper is Content based Filtering.The fifth paper is "Friendbook Recommendation System" Contribution of this paper is How to implemement this Friendbook Recommendation System.The sixth paper is "Friend Recommendation System for Online Social Networks " Contribution of this paper is in deep analysis of Friendbook Recommendation System.

ALGORITHMS

LDA (Latent Dirichlet Allocation Algorithm)

The Expectation-Maximization (EM) technique to comprehend the LDA deterioration, where the E-step is utilized to evaluate the free variational Dirichlet parameter and multinomial parameter F in the standard LDA display and the Mstep is utilized to amplify the log probability of the exercises under these parameters. After the EM calculation meets, we can ascertain the deteriorated action theme framework. Perusers are alluded to for more points of interest of the LDA calculation and option deterioration approaches.

Collaborative Filtering Algorithm

Collaborative filtering is the way toward separating data collaboration among various agents, viewpoints, data sources, etc. Utilizations of synergistic sifting includes expansive informational indexes. Collaborative filtering techniques have been connected to numerous non-indistinguishable sorts of information including: money related information, for example, monetary administration foundations that consolidate numerous budgetary sources; observing and detecting information, for example, in mineral investigation, natural detecting over extensive zones or different sensors; or in electronic trade and web applications where the attention is on client information, and so forth. Collaborative filtering can be utilized for making programmed forecasts about the interests of a client by gathering inclinations or taste data from various clients by methods for joint effort.

Content Based Algorithm

These techniques depend on a depiction of the thing and a profile of the client's inclination. These calculations prescribe things that are like those that a client enjoyed before or is looking at in the present. Specifically, a few hopeful things are contrasted and things already evaluated by the client then the best-identical things are prescribed. This approach has its underlying foundations in data recovery and data sifting research . Basically, these strategies utilize a thing profile portraying the thing inside the framework. The framework create a substance construct profile of clients based with respect to a weighted vector of thing highlights. The weights mean the importance of each component to the client and can be processed from separately evaluated content vectors utilizing an assortment of systems.

Friend Recommendation Algorithm

Input : Current Activity of active/current user

Output : Recommend friend list according to current user's activity.

Step1 : Get current activity(A)of active user.

Step2 : Get total count(C) of that particular activity from history table.

Step 3: Get other users whose,

Current or past activity = active user's current activity

S = {u1,u2,…….un}

Step 4 : for(u1,u2,….un)

{
Get total count(Ac) of u1 whose current or past activity = Active user's current activity (A)
Calculate Probability
P = Ac/C i.e. Total count of user / Total count of user activity
}
Step 5: Get
P= {P1,P2,…..,Pn}
Step 6:Recommend Friends
S= {u1,u2,….,un}
According to the decending order of probability
P={P1,P2,….,Pn}
Step 7: End

APPLICATIONS

1. We can make real time applications for recommending friends about our choices and likings and increase our social networking and publicizing.
2. It provides recommendations for services like travel services, experts for consultation, houses to rent, or matchmaking services.
3. We can make the mobile app for recommending friends.

CONCLUSIONS

- From this paper we have studied & analyzed various recommendation based algorithm like LDA,CF,CB & RA.
- The best recommendation algorithm among the mention algorithm will be utilized to build recommendation system for improving the performance of communication & networking.

REFERENCES

1. Zhibo Wang, Jilong Liao, Qing Cao,Hairong Qi, Senior, and Zhi Wang,*" **Friendbook: A Semantic-Based Friend Recommendation System for Social Networks",*** IEEE Transactions On Mobile Computing, March 2015
2. Sachin V Josef, MinuLalitha Madhavu *"**Incremental Iterative Time Spent Based Ranking Model For Online Activity based Friend-Group Recommendation Systems",**IEEE,2015*
3. Varun Jain D J, Dr. M Siddappa "***Friend Recommendation Through Semantic Based Matching And Collaborative Filtering System In Social Networks***", International Journal Of Advances In Cloud Computing And Computer Science (IJACCCS),2015
4. Jyoti Sharma,Pinky Tanwar*.," **A Survey on Friend Recommendation System",*** IJARIIE, 2016
5. Harsha Chaudhari, Nilam Darekar, Vishal Raut, Harshal Wani, Prof. Darshika Lothe ***"Friend book Recommendation System"***, International Engineering Research Journal (IERJ) ,*2016*
6. Dagadu M. Jadhavar , V. R. Chirchi ***"Friend Recommendation System for Online Social Networks",*** International Journal of Computer Applications,Nov 2016
7. Li Bian, Henry Holtzman" ***Online Friend Recommendation through Personality Matching and Collaborative Filtering",*** The Fifth International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies, 2011
8. Pooja Tasgave1 , Amit Dravid ***,"Friendbook: A Lifestyle based Friend Recommendation System",*** International Journal for Research in Applied Science & Engineering Technology (IJRASET),2015
9. Guosheng Kang, , Mingdong Tang, Jianxun Liu, Xiaoqing Liu, Buqing Cao, *M,"* ***Diversifying Web Service Recommendation Results via Exploring Service Usage History",*** IEEE Transactions on Services Computing,2015.

10. Tiffany Ya Tang and Gordon McCalla1,"***Mining Implicit Ratings for Focused Collaborative Filteringfor Paper Recommendations",*** Natural Sciences and Engineering Research Council of Canada.