

A SURVEY OF ACTIVITY BASED FRIEND RECOMMENDATION SERVICES

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ABSTRACT

In this paper, we have presented a literature review of the modern Activity based friend recommendation services. Social networking sites imply friend recommendation Systems in contribution to providing better user experiences. Online friend recommendation is a rapid developing topic in web mining. Current social networking servicing recommend friends to users based on their social graphs and mutual friends , which may not be the most appropriate to reflect a user's taste on friend selection in real lifetime . In this paper propose a system that recommends friends based on the daily activities of users. Here a semantic based friend recommendation is done based on the users life styles. By using text mining, we display a user's everyday life as life archives, from which his/her ways of life are separated by using the Latent Dirichlet Allocation algorithm. At that point we discover a similarity metric to quantify the similarity of life styles between users, and ascertain users effect as far as ways of life with a similarity matching diagram. At last, we incorporates a feedback component to further enhance the proposal precision.

Keywords: *Activity Recognition; Social Networks; Text Mining; Data Mining; Pattern Recognition.*

I. INTRODUCTION

A social network is a system where clients (nodes) are joined with one another by relationship (edges). The edges are undirected and the quantity of edges demonstrates the quantity of companions a client has. A percentage of the remarkable interpersonal organizations are Facebook, Google plus LinkedIn and so forth. Each client keeps up a profile. There are numerous properties in the profile which can be utilized to anticipate the quality of ties between diverse clients.

The vast majority of the friend recommendations system depends on previous client connections to pick friend candidates. For example, Facebook depends on a social connection examination among the individuals who as of now impart basic friends and suggests symmetrical clients as potential friends.

Existing social networking services prescribe friends tousers based on their social graphs, which may not be themost appropriate to reflect a user's preferences on friendsselection in real life. With the quick advancement of social network, recommendation systems in different fields rose. A decent suggestion framework ought to consolidate different sorts of suggestion impacts and assurance differences on the base of exactness, in order to fulfil some disagreeable tastes.

One test with existing social networking services is the way to prescribe a good friend to a client. Most of them depend on previous user connections to pick friend candidates. In our ordinary lives, we may have several activities, which structure important groupings that shape our lives. In this paper, we utilize the word activity to explicitly refer to the actions made in the order of seconds, for example, "running", "strolling", or "perusing", while we utilize the expression way of life to allude to more elevated amount reflections of day by day lives, for example, "office work" or "shopping". For example, the "shopping" way of life basically comprises of the "strolling" movement, however might likewise contain the "standing" then again the "sitting" exercises.

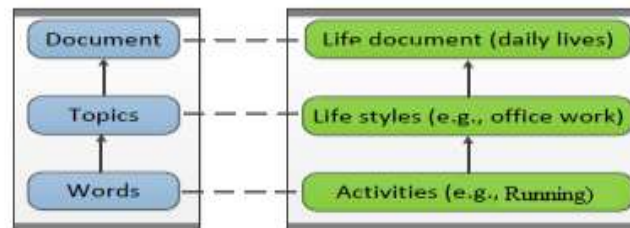


Fig. 1: A Relationship Between Word Archives And Individuals' Everyday Lives

The commitments of this work are summarized as follows:

- Friend recommendation is done based on life style of users.
- We display the everyday lives of clients as life reports by collecting activities and use the probabilistic topic model to extract life style data of clients.
- Then using similarity metric and calculate the similarity between users and constructing friend matching graphs.
- A user feedback mechanism for improving accuracy and based on that decide optimum threshold value.

II. LITERATURE SURVEY

There is a broad class of Web applications that include anticipating client predicting user responses to options. Such a facility is called recommendation system. Recommendation systems can be separated into two areas of center: object suggestion and link recommendation. Organizations, for example, Amazon and Netflix stress object suggestion where items are prescribed to clients in light of past behavioral examples [2], [3], [4]. Person to person communication destinations for example, Facebook and LinkedIn concentrate on connection suggestion where companion suggestions are introduced to clients. The work we present in this paper mainly focuses on the latter, in which we develop friend Recommendation system within social networks. The recommendation systems employed by different sites are based on mutual friends.

Friendbook [1], a novel semantic-based friend suggestion system for social networking communities, which prescribes friends to clients focused around their ways of life rather than social graphs. By exploiting sensor-rich cell phones, Friendbook finds ways of life of clients from client driven sensor information, measures the closeness of ways of life in the middle of clients, and prescribes friends to clients if their ways of life have high likeness. LDA is a probabilistic model for collecting distinct data with a three-level hierarchical Bayesian model, where each item of a collection is modelled as a definite mixture over an underlying set of topics or words. The data collection module gathers life reports from users post and other activities. The ways of life of clients are separated by the way of life analysis module with the probabilistic topic model. Latent Dirichlet allocation algorithm is a probability based entropy model with more accuracy. It extracts topics from set of words. Based on the similarity metric, we model the relations between users in real life as a friend-matching graph. Friend-

matching graph: It is a weighted undirected graph $G=(V,E,W)$ where V represents users, Edge represents relationship and Weight represents similarity between users. At a time only 5-10 recommendation are made to the user. Suppose the user accept one of the recommendations or sends a friend request then a new recommendation from top of the k -neighbour list is suggested to the user. Also, changes are made to the 'k-nearest' neighbour list which ensures the same people are not recommended again. To support performance optimization at runtime, we also integrate a feedback control mechanism. Based on the feedback from the user the threshold value can be set. Under different threshold value the algorithm is evaluated for the best results.

Netflix [4] and Rotten Tomatoes [5] suggest movies to a client focused around the client's past evaluations also viewing propensities. As of late, with the development of social networking systems, friend recommendation has gotten a ton of consideration. As a rule, existing friend recommendation in long range social networking systems, e.g., Facebook, LinkedIn and Twitter, suggest friends to clients if, as per their social relations, they impart common friends. In the interim, other proposal components have additionally been proposed via analysts. Another Suggestion based on geologically related friends in social network by joining GPS data and social network structure[8]. The advancement of GPS-empowered mobile phones gives social network researchers a taste of digital cyber-physical social network in advance. Traditional link prediction methods are intended to discover companions exclusively depending on social network information. With area and direction information accessible, we can create more exact and topographically related results, and help web-based social service users find more friends in this present reality. Planning to suggest topographically related companions in interpersonal organization, a three-stage measurable proposal methodology is proposed for GPS-enabled digital physical informal community. By consolidating GPS data and informal community structures, we fabricate an example based heterogeneous information system. Links inside this system reflect both individuals' geographical information, and their social connections. Our methodology assessments join significance and discover promising geo-friends by employing a random walk process on the heterogeneous information network. Exact studies from both manufactured datasets and genuine dataset exhibit the force of fusing GPS information and social diagram structure, and recommend our technique outflanks different routines for companions proposal in GPS-based digital physical informal organization.

Link recommendation [9] in weblogs and comparable social networks, and proposed an methodology focused around community suggestion utilizing the link structure of an social network and substance based proposal utilizing shared pronounced diversions. Kuan et al. proposes an algorithm to place gatherings utilizing a transitive extension based methodology [10]. This examination proposed represented the utilization of a 1.5-clique expansion technique to infer substructures, or groups, inside informal organizations. Results demonstrated that this strategy was genuinely compelling in finding group of friends. Be that as it may, this technique does not give knowledge into how these groups are structured. That is, it is noteworthy to comprehend what basic hobbies cause a arrangement in these groups. Activity recognition serves as the premise for separating abnormal state day by day schedules (in close connection with ways of life) from low-level sensor information, which has been broadly mulled over utilizing different sorts of wearable sensors.

Reddy et al. [14] utilized the inherent GPS and the accelerometer on the cell phones to discover the transportation mode of an single person. Cenceme [15] utilized numerous sensors on the cell phone to catch client's exercises, state, propensities and surroundings. Soundsense [16] utilized the amplifier on the cell phone to perceive general sound sorts (e.g., music, voice) and find client particular sound occasions. Easytracker [17] utilized GPS follows gathered from cell phones that are introduced on travel vehicles to focus courses served,

find stops, and induce plans. The MIT Reality Mining project [18] and Farrahi and Gatica-Perez [19] attempted to find every day area driven schedules from huge scale area information. They could construe every day schedules, for example, leaving from home to office and consuming at a restaurant.

Collaborative Filtering (CF) based Recommender Systems are most essential procedures of prescribing things to the clients. The easiest and unique execution of this methodology prescribes to the dynamic client the things that different clients with comparative tastes enjoyed before. The likeness in taste of two clients is ascertained in view of the similitude in the rating history of the clients. Collaborative Filtering (CF) frameworks work by gathering client criticism as appraisals for things in a given space and abusing similitudes in appraising conduct amongst a few clients in deciding how to prescribe a thing. Collaborative oriented Filtering (CF) routines can be further subdivided into neighbourhood-based and model-based approaches. Collaborative Filtering makes a gathering of clients with comparative conduct, and finds the things favoured by this gathering. Evaluations from client will be taken from client in two ways unequivocal rating and certain rating [5]. CF calculations are partitioned into two sorts, memory-based algorithm and model based algorithm. Memory-Based algorithm just stores all the client evaluations into memory. There are two variations of memory-based proposal and both are in view of the k-Nearest Neighbour calculation: client based sifting and thing based separating. In User - Based Filtering, Rating lattice is utilized to discover neighbouring clients for the dynamic client. This is carried out by utilizing cosine or Pearsons correlation matrix.

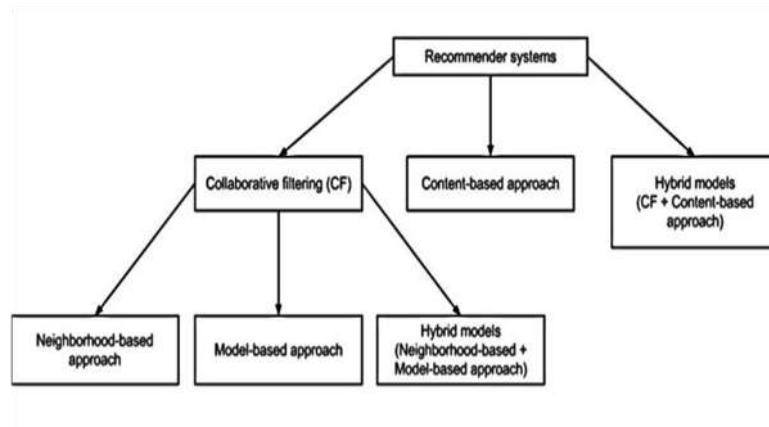


Fig. 2: Types of Recommender Systems

III. CONCLUSIONS

In this paper, we presented the survey of a new activity based friend recommendation system for social networks. Outlining a recommender system for a social network is extremely difficult as the things prescribed here are not some spiritless merchandise. At the point when a friend is prescribed to a user and the user sends a friend request, the friend can in any case reject the request. There are numerous social elements which assume a part in creating a relationship or a tie between users. Recommender systems are efficient tools that beat the data over-burden issue by giving clients the most relevant contents. Different from the friend recommendation mechanisms relying on social graphs and mutual friends in existing social networking services, System extracted life styles from user-centric data collected from daily activities such as posting, chatting, and other activities and recommended potential friends to users if they share similar life styles The significance of contextual information has been perceived via analysts and specialists in numerous disciplines including Ecommerce, customized IR, ubiquitous and mobile computing, data mining, marketing and management.

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