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Friendbook: A Lifestyle based Friend Recommendation System

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Abstract— Few years ago, people naturally made friends with people who work or live close to themselves, such as associates or neighbours. This relationship can be defined as G-friends, where G-friends stand for geographical location-based friends because they are influenced by the geographical distances between each other. With the large advances in social networks, services such as Google+, Twitter, Facebook have provided us many radical ways of making new friends. According to one of the popular social networks 'Facebook' statistics, single user has an average of 130 friends, conceivably larger than any other time in history. One challenge with current social networking services is how to recommend suitable friend to a user. Most of them depend on already existing user relationships to select friend candidates. For example, Facebook count on on a social link analysis among those who already share common friends and recommends proportioned users as probable friends. Regrettably, this approach may not be the most appropriate based on recent friend findings.
Keywords— Friend recommendation, data mining, social networks, life style, content recommendation

I. INTRODUCTION

The structure of our personal social networks are driven by the tendency of individuals to associate and bond with similar people. This tendency is known as homophily. This homophily affects the establishment of any kind of relationship which can be emotional, information transfer or even financial transactions. Similar demographic information and personal interests have strong effects on which others people choose to form ties with. Moreover, the people to whom we are exposed as potential new ties is heavily dependent on our existing set of ties – e.g. friends of friends – and on the organizations of which we are part of, such as schools, workplaces and community groups. As homophily provides exposure to people who are different in terms of their approaches, understandings and information, people often actively strive for new sources of information, and so they must endeavor outside of their local networks and create social ties that bridge relatively extensive social distances to individuals who are different from them, and thus have access to different information.

In traditional systems we concentrate on demographical similarities between users to check their compatibility which is better for physical world of the user but on social media it is not possible that each user will expect to make friends from the same geographical area in which he is staying, Consider an Indian citizen who is working in china, it this case user will prefer to make friends from his culture or might be another countries like America or Canada.IN this case if we restrict our recommendation system for some geographical distance then system will not be able to provide correct friend suggestions.

As per their social and informative aims individuals might choose to form different kinds of links at different times. People do this to a certain extent unsurprisingly, and partition their many friends into different planes of their social life. However, as has been shown with online social network services, all of one's contacts are taken together into a single contact list. When observing this collection of individuals and ties as a single network, the reasons for the creation and maintenance of each tie are not clear. Similarly, recommending new people with whom to form relations is puzzling because of the decontextualized nature of the relations themselves.

While the theoretic topic of this paper is the structural basis of connection recommendations, the applicable object of study is the microblogging website Twitter. Twitter provisions users posting very short posts ("tweets") – up to 140 characters in length. These messages are then visible to those users have chosen to receive that specific user's messages ("followers").

II. EXISTING SYSTEM

Recommendation systems can be categorized into two areas of focus: object reference and link reference. Enterprises such as Flipkart and Snapdeal lay emphasis on object recommendation where products are recommended to users based on past behavioral patterns. Social networking sites such as Facebook and Twitter emphasizing on link recommendation where friend recommendations are presented to users. The recommendation algorithms engaged by sites such as Facebook are private. On the other hand, through observation, it is understandable that a friends of friends' method is being used. This approach is useful and effective due to ease of implementation and the nature for humans to be drawn together through association. Similar network based methodologies such as graph based introduction[13] and link extracting have been considered but fall in evaluation to the

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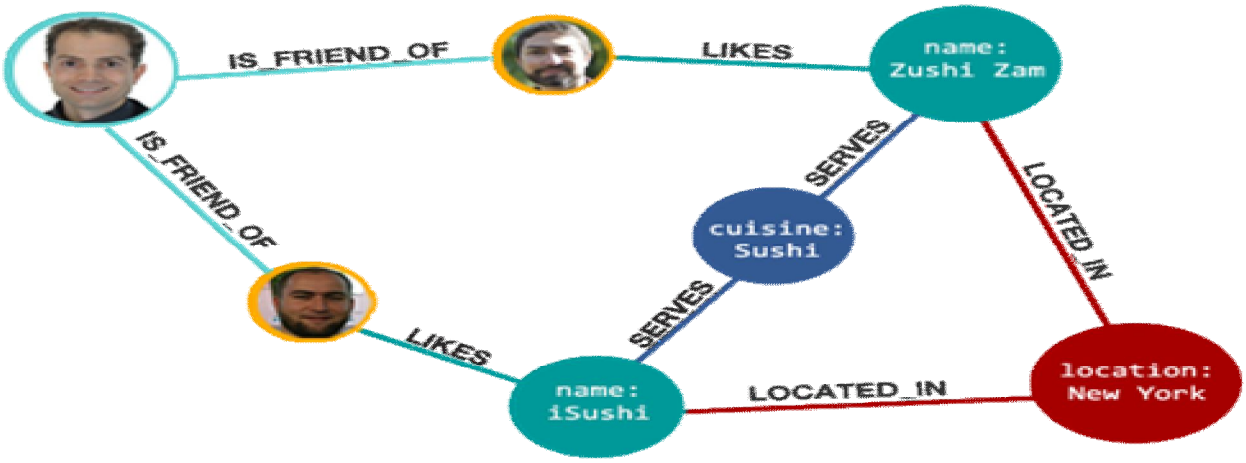
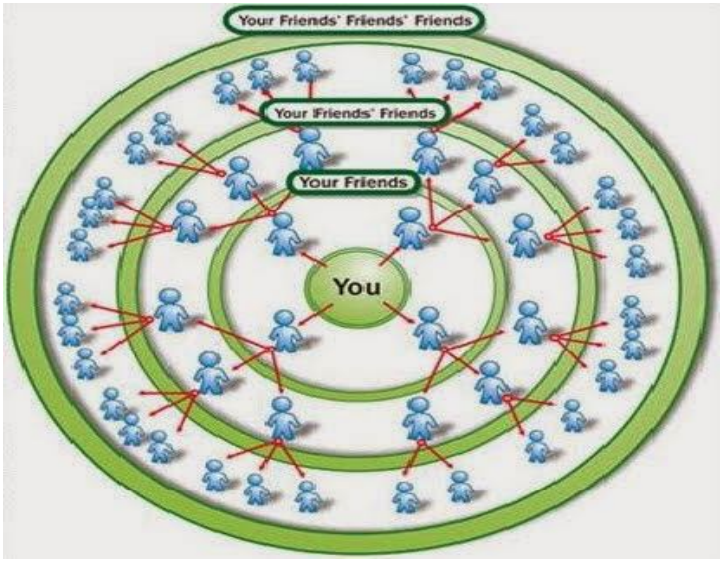
inadequacy and adeptness of a friends of friends approach.



Kuan et al. offers an algorithm to uncover groups using a transitive allowance based approach [14]. This research suggested the usage of a 1.5-clique extension method to derive sub organizations, or communities, within social networks. Results indicated that this technique was fairly effective in finding community of friends. However, this method does not provide understanding into how these groups are formed. That is, it is notable to understand what common interests cause a formation in these communities.

The use of degree criticality desires to align the extraordinary filtering effects of friends-of-friends. Degree criticality efficiently enlarges our filtered set by identifying users whom have many outbound links. That means, we assign our filtered set with users whom expose a large number of connections. People with many friends can be measured as exposed or popular. It is important to hold these types of users into our set due to their idea in gaining friendships. However, it is respectively important to note that this type of association may not be honest. That is, a pleasing or popular individual may simply form links for the sake of establishing associations [2]. However, our research is concerned only with the formation of links.

Third-party programmers have developed a number of applications using the Twitter API to compensate for Twitter's lack of adapted friend recommendations. WhoShouldIFollow.com permits users to provide their username and retrieve a list of users similar to themselves and other Twitter users they follow, which can be filtered by position and attractiveness. Twubble.com checks who a Twitter user's friends follow, and ranks apparent contacts by number of mutual followers. MrTweet.net checks a user's social network and suggests hypothetically remarkable people based on mutual friends; the site claims to find "great people applicable to your purposes".

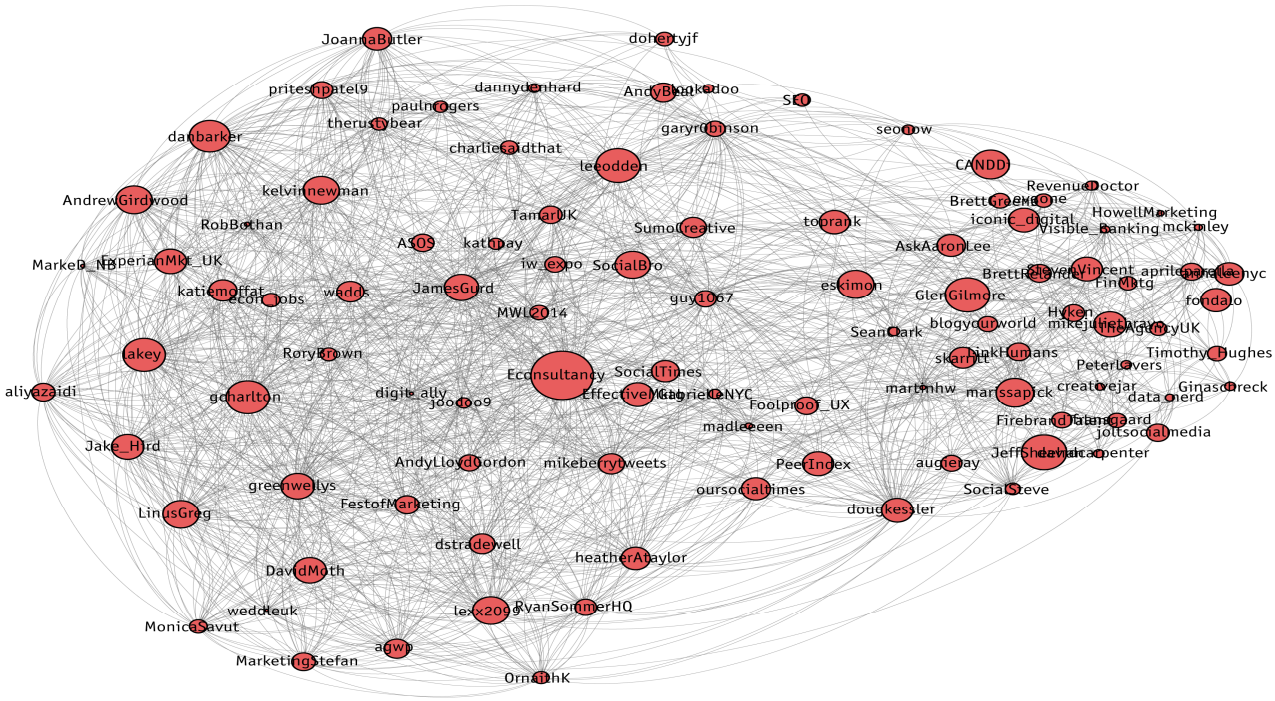


In large scale web applications, the underlying graph is classically stored on disk, and all edges are flooded or a map-reduce

calculation is executed. The Monte Carlo method needs random access to the graph, and has not found widespread applied use in these applications. However, for social networking applications, it is critical to backing random access to the core network, since messages flow on edges in a network in real-time, and random access to the social graph is necessary for the core functionalities of the network. Therefore, the graph is usually stored in distributed shared memory, which we denote as "Social Supply", providing a data access model very similar to Scalable Hyperlink Store [2]. We use this feature strongly in gaining our results.

III.PROPOSED SYSTEM

Recommendation systems that try to suggest items to users have become more popular in recent years. For example, Amazon recommends items to a user based on items the user earlier visited, and items that other users are watching at. Netflix and Rotten Tomatoes recommend movies to a user based on the user's earlier ratings and watching habits. Recently, with the advance of social networking systems, friend recommendation has received a lot of consideration. Existing friend recommendation in social networking systems, e.g., LinkedIn, Twitter and Facebook, recommend friends to users if, agreeing to their social relations, they share common friends.



We are proposing a system to fulfil various objectives mentioned below

A. To model daily lives of users as life documents. System can track social activities of users repeatedly after specific interval to make friend suggestion more efficient.

B. To discover life style vector for each user given the life documents of all users. This can be achieved by keeping track of wall posts and comments of users

C. To perform real time activity recognition [7] & report the generated life documents to the servers. We can use various triggers in activities like photo or location tagging to send info to server.

D. To construct a friend matching graph, using friend matching graph construction module, we can represent similarity relationship between user's life styles.

E. To calculate impact of the user using impact ranking [1] module, which will be able to identify effect of one user's post to other user's activities.

F. To collect users' feedback, to increase the accurateness of the friend recommendation system.

G. To propose a unique similarity metric to characterize the similarity of users in terms of life styles and to construct a friend-matching graph to recommend friends to users based on their life styles.

H. To send ranked list of potential friends to the user by considering the life style similarity & User impact [2].

The main idea of our association recommendation algorithm is to consider friend recommendations as a filtering problem where we optimize a set of superiority, appropriate friends customized for each individual while concurrently determining their opinion of friendship. We begin by observing an individual in a social network which we consider to be the central node, U_c. With respect to U_c, we then inspect candidates for possible friendship, i.e., all users, U_i, whom are not friends with U_c. First, we filter U_i using a friends of friends approach and degree centrality to obtain a reduced set of potential friends.

IV. FUTURE WORK

Friend book is scalable to large-scale systems if we could implement the iterative matrix-vector multiplication method incrementally or distributive. The similarity threshold used for the friend-matching graph is fixed in our current prototype of Friend book. It would be interesting to explore the adaption of the threshold for each edge and see whether it can better represent the similarity relationship on the friend-matching graph.

V. CONCLUSIONS

We studied various techniques for friend recommendation systems in social networks to state the problem of evaluating how and why links are formed within social networks. By addressing this problem with support of genetic algorithms [14], compound network theory and cognitive theory, our claim is that the combination of network based and social based approaches are more effective in recommendation compared to its individual equivalents. In this paper, we developed a friend recommendation system that proposed superiority, significant friend recommendations in addition to providing comprehensions into each individual's opinion of friendship. This method has shown that a combined approach has thus far overtook purely social and purely network based approaches but still has much room for perfection. The primary issue attributing to lower performance in social based approaches is due largely to the wholeness of data. In order for social based approaches to flourish, it is important to work with users whom expose more information on these social networks. Additionally, social based approaches will perform better if user information is truthful. Our methodology and results in this paper presents initial discoveries to a potentially strong method of providing friend recommendations in social networks while additionally gaining understandings into how friendships are established.

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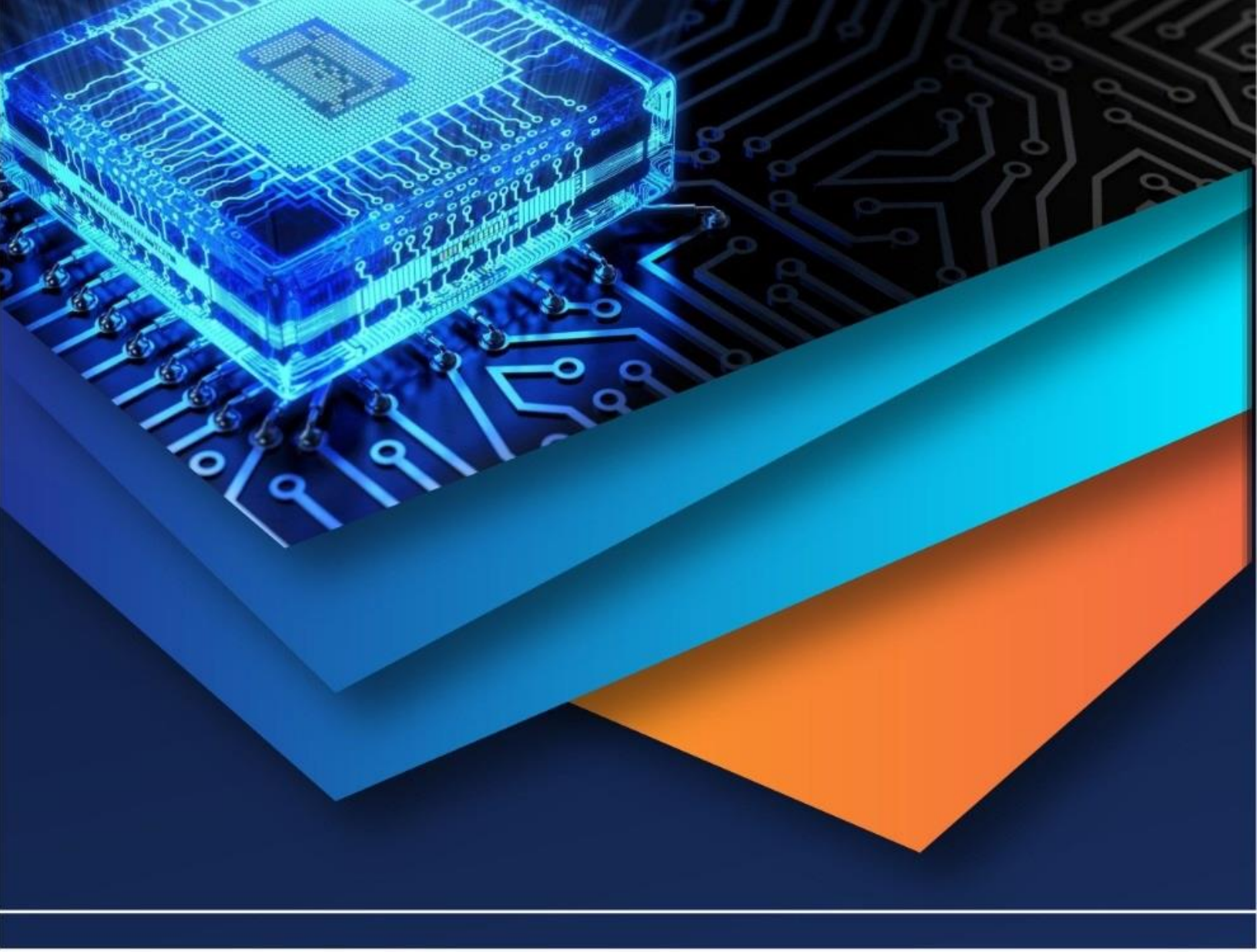

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