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Classifying and Mining Social Information

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***Abstract*— Nowadays Interviewer is a log source helping people to create relationship between them. Social network application acts as a huge medium for communication and sharing information. The best-known example of a social network is the friendship relation found on sites like Facebook. Communities are the back bone of the social network architecture. For mining and classifying social information, a design paradigm is important. Explicitly graph model is familiar design to represent the properties of social network. Social information helps to know the behaviour of a group of people and predict the social impact. In this paper, the work is to create the graph network model and finding the ways for classifying and mining the social information. Our delivers show the weighted graph structure, classify the communities, and found out the behaviour of members of social network and community relationship.**

***Keywords*— Data mining, Data privacy; Anonymization; Data publishing, Privacy preservation. .**

I. INTRODUCTION

Social network is one of the platforms for making relationship each other. The members, communities, friends, posted information are the properties of Social networking system, the greater amount of communities gives the strength in the network and digs more information. Generally, the members tide with at least one community and the community members may be or may not be having the relationship with other communities. . The members join with at least one group or one community and they share the expression, knowledge and information to others. For the statistical analysis of the grown network, the social network represents into graph model. Graph model well suits to represent the social network system. The relationship identification is too difficult and hard to track the growing schema of communities [11][12]. Researchers analyse the characteristics of members and the behaviour of Communities based on the connection of a graph and its properties. The properties of a graph represent the properties of social network..

II. GRAPH MODEL

A graph represents the schema of a set of objects that are interconnected to each other. Vertices represent the interconnected objects. Edges represent the links between inter-connected objects. Typically, a graph illustrates in geometrical form as a set of dots for the vertices, joined by lines or curves for the edges. A graph is an ordered pair G = (V, E) comprising a set V of vertices jointly with a set E of edges. E is a set together with a relation of incidence that associates with each edge two vertices [5]. A vertex may exist in a graph and not belong to an edge. V and E are usually taken to be finite. Many of the well-known results are not true (or are rather different) for infinite graphs because many of the arguments fail in the infinite case. The order of a graph G is the number of vertices in G. A graph's size is the number of edges. The degree of a vertex is the number of edges that connect to it, where an edge that connects to the vertex at both ends (a loop) is counted twice [7].A weighted Graph is one of the types of representation model. In weighted graph, each edge is marked as numerical value that the value has given the meaning of cost, length, label, etc., based on the problem.

III. PROPOSED WORK

In Figure.1, G is a Graph model. Let Vertices A, B, C..P represent member of network graph and edges represent the relationship between two members [1]. The number of vertices is denoted as number of members participated in social network G. In network G, vertex A makes relationship with B and C. Hidden edges are not considered. Hence the degree of vertex A is denoted as number of friends inter-connected with vertex A..

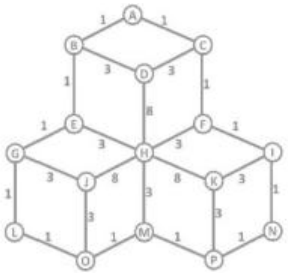

Fig.1 Graph Model G

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In a social network, the weight value is represented as the group name or community name. Here community represents the geographical location. Each vertex has inter-connection with some other vertexes (at least one). Hence, each vertex should have a weight value. The number of groups finds ou through the vertex which having the total number distinct weight value. In figure 1, the vertices A, B, C, E, G, L, O, M, P, N, I, F are having weight value 1. So these vertices have joined in group 1.

IV. Mining Social Information

Consider the following graph social network model that helps to click valuable information such as characteristics of communities, behaviors of members and schema of social network architecture.

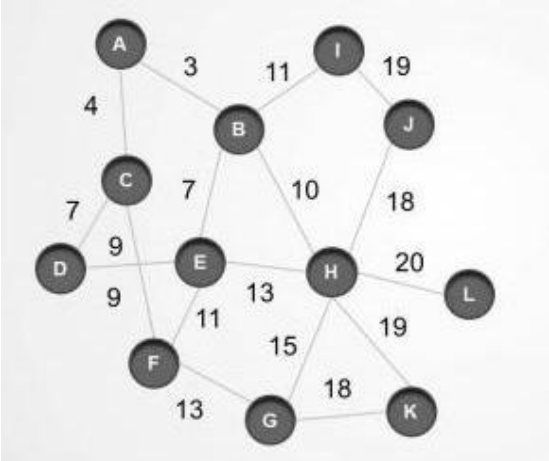

Fig.2 Social a network Model G1

There are 12 members {A,B,C,D,E,F,I,J,K,L} join in the network G1, Here, Weight value is denoting different relationships between groups. Hence, there are 11 groups {3,4,7,9,10,11,13,15,18,19 and 20}created in the network and share the information to other members. In the network G1, Member L has joined in only one group named as 20. The value of the density of member invents through the number of the groups who has joined. Member H has joined in 6 groups {10, 13, 15, 18, 19, and 20} and also he has more friends than other members in different groups. The density of group decides through the number of members who has joined in the group. The value of the density of group 19 is 4 and it is the largest group in the network. In this paper, group members share the social information to all groups which has been related to objective of the groups. Variety of social information is corresponds to motivation of the groups.

V. Relationship Classification

In the social network, the member's relationship encapsulates from all members [2][3]. Mostly, sharing information flows in private and communicates between follow up members only not to public. Some groups show into public and share the information to all members. Some members show their friends list with detailed information. The large network classifies into small sub networks based on the communities and their link paths. Each sub network have in common is network transitivity, which is the property that two vertices that are both neighbors of the same third vertex have a heightened probability of also being neighbors of one another[10]. In graph G1, the members have classified in to 11 distinct domains. For example, the Group 19 is denoted as College mates. This group of members comes under the age from 18 to 23. They share the information about dating activities, funny messages, entertainment related posts. The group 18 shares the information about child care. The members haven't joined in both groups 18 and 19 simultaneously. The member H has made relationship with different group member. The density of member H identifies that he is highly active in many groups.

A. Mining and classifying social networks

The proposed method is implemented in simple network graph model for mining and classifying the network. In the fig3, the Graph model considered as Simple social network, The vertices A,B,C,D,E,F,G,H,I are representing the member of social network. The edges are represent the relationship between vertices (members). The weight values represent the name of communities. There are 4 communities {5,4,6,10} created in the network. Here the social network analyse the relationship between members and communities.

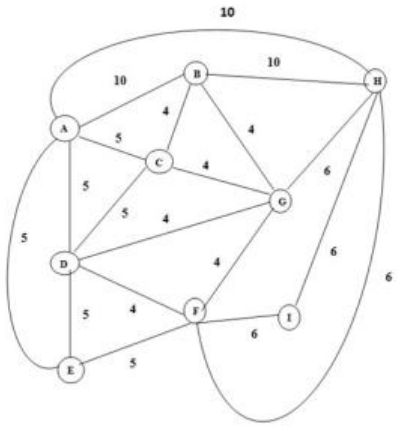

Fig.3 Weighted Graph

Members information and their relationship

Member A = A → B, A→ C, A→ D, A→ E, A→H.
Degree of Member A = 5
Member B = B→ C, B→ A, B→ H, B→ G.
Degree of Member B = 4

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Member C = C→ D, C→ A, C→ B, C→ G.
Degree of Member C = 4
Member D = D→ A, D→ E, D→ C, D→ F,D→ G.
Degree of Member D = 4
Member E =E→A, E→ D, E→ F.
Degree of Member E = 3
Member F =F→D, F→G, F→E, F→I .
Degree of Member F = 4
Member G =G→ F,G→C, G→ B, G→H.
Degree of Member G = 4
Member H =H→ A,H→I, H→ G, H→B,.
Degree of Member H = 4
Member I = I→ F, I→H.
Degree of Member I = 2

Communities and its member relations
Communitites={ 5,4,6,10}
Community 5 = {A,C,D,E,F},
Friendship connectivity = {A→C→D→ E→F,A→ E}
Community 4 = {B,C,D,G,F}
Friendship connectivity = {B→C→G→ D→F }
Community 6 = {H,G,I,F},
Friendship connectivity = {H→G→I→ F→H }
Community 10 = {A,H,B},
Friendship connectivity = {A→B→H →A}

Members and their communities
Member A = {5,10}. Density of joined communities = 2
Member B ={10,4. Density of joined communities = 2
Member C ={5,4}. Density of joined communities = 2
Member D ={5,4}. Density of joined communities = 2
Member E ={5}. Density of joined communities = 1
Member F ={5,4,6} Density of joined communities = 3
Member G={6,4}. Density of joined communities = 2
Member H={6,10} Density of joined communities = 2
Member I ={6} Density of joined communities = 1

VI. CONCLUSION

This paper assured the weighted graph model well suits for representing the social network schema. The corollary, lemmas of graph theory correlates the social network properties and helps to measure the characteristics of social networks, analyse the sub network schema and mining the valuable social information. The direction of future work involve in the sub network classification, finding correlation between sub networks, measure the Eigenvector centrality of members who acts as a bridge member.

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