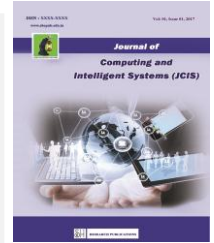




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Review on Virtual Communities in Social Network

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Abstract — The purpose of social network is to share the information along greetings, photos and videos and wishes with the different communities in the networks. Nowadays, people were more interested to build their communities in the social media. Virtual community shows the relationship on friends, family members and their colleagues. Nowadays, rich user interaction made by social media and Business group mostly prefer to promote the business through the social media like face book, whatsapp etc. This paper leads to discovering online communities in social media and identifying the users in online communities.

Keywords Online social networks, social media, virtual community.

I INTRODUCTION

Today, Social Media contains hundreds and millions of heterogeneous peoples. Some social media website plays a vital role to creating groups for share information, knowledge with their friends, family members. In the growth of social media, people made their various types of interactions are involved social media websites and more than 40% of website for a social media sites. In India, 226.06 millions of user using the social media sites in the year of 2018. Community detecting is a process of detecting groups based on network structure with some similarity measures. Social media offers some business opportunities to enrich Social Network Analysis has a recent research emerging technique to find and analyze the structure of the network. The objective of the virtual community detection is to analyze to user behaviors and user interest. This paper gives some basic knowledge of community structure using graph theory.

II SOCIAL NETWORK ANALYSIS (SNA)

Nowadays, Youngsters shows their interest to works on social media sites. Through the social media sites users share their personal information to third parties without any privacy. Users might be aware of using social network otherwise losing privacy. Users while sending the personal information its leaks to unwanted people so, they can easily spread the information to other nodes without permission [5]. Social Network Analysis (SNA) is provides both mathematical and visual analysis of the social network. Link prediction algorithm gives an idea to identify user relationship among others [6]. It also understands about individual and community. In community it identifies number of people in the gang and it discovers a level of

connectivity between nodes [3]. In traditional social media group have a few members unlike nowadays social media sites often more than hundred members were join in the single community.

III SOCIAL NETWORK THEORY (SNT)

Social Network Theory which is helpful to study of people among social network like organization, group and user interaction with in a network. Link data provides identifying a nodes which are belongs to specific community [7]. SNT has some parameters to found the structure of the network as nodes and ties. Nodes are representing individual actors (User). Ties are relationship between the actors (Users). Ties are also referred as edges. Graph Theory is used for finding communities in network. Community Detection is a study of structure properties in real time social network. Graph Theory plays a role of find a group's connection network.

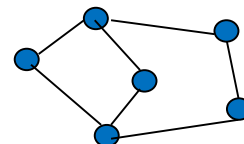


Figure 1 - Relationship between Nodes

IV GRAPHY THEORY

Graph Theory is a novel approach to analyze the structure of the dynamic social network. Graph Theory is a study of network creating some patterns among the objects (nodes). Graph is a set of vertices and set of lines between pairs of vertices. A graph contains nodes and nodes are connected to the edges. In the diagram 1 shows the nodes and every node are connected by the arcs. $G = (V, E)$

In the figure 1, Number of Vertices is 6 and number of edges is 7.

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Types of Graphs

Null Graph

Null Graph representing where the node or vertices is empty and there is no edges.

Empty Graph

An empty graph had a certain nodes but there are no edges

Directed Graph

Nodes are having directed edges. Directed Graph also referred as digraph. Analyzing the structure and the dynamic of complex network is a difficult task. The community's detection into directed networks, a network based on connected components [1].

Undirected Graph

Nodes had some edges but all edges are bidirectional.

Multi Edge Graph

Two or more edges connecting with two vertices. In a multiple network there are different types of actors. There is a problem to find a relationship between nodes.

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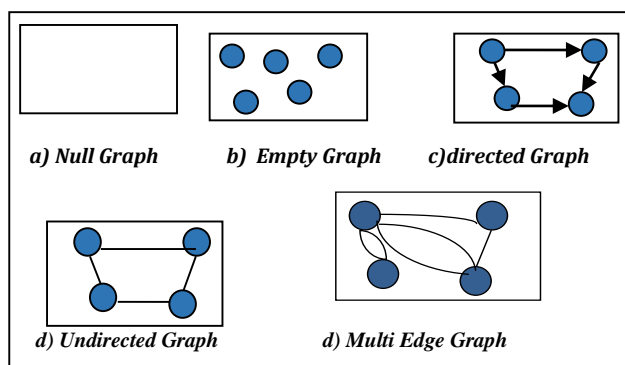


Figure 2 - Types of Graphs

V CONCLUSION

Social media website and handheld devices as mobile phones are powerful tools to build a community between people, friends and family members. The graph theory is supports to build a strong community structure in large scale of networks. Some common application of community detections are Recommendation systems, fraud Detection, Viral Marketing. Community detecting is providing some simple patterns for applying to various applications. In future some of the algorithm can be developed for bring better performance in social network.

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