

Abstract

The social interactions between entities (user) like exchanging information and communicating with each other in a social network is the phenomenon which able to be researched and analyzed in science called Social Network Analysis (SNA). The implementation and research in SNA has been done on many fields like telecommunication, video processing and Internet-based social media such as social network. Twitter is a online-based social media whose concept, relationship, characteristics of the data can be mapped and modeled as a simple workflow for distributing information using SNA. This thesis raised an issue to find the most popular Twitter user in a group based on the activities that occurred in the group. The solution to these problem used the centrality measurement to quantify the influence of a node in a graph. The value of the centrality measurement indicated the popularity of user(node) in a group. This thesis used the concept of weighted-directed graph to adapt the data characteristics and relationship in Twitter. This concept is used because the “following” relation in Twitter is the most important relation between users to interact and communicate. This thesis applied the eigenvector centrality method to measure the number relation and its importance of a node and considering the indirect relation between nodes to find the most influential node in a network. The concept of Probabilistic Affinity Index (PAI) was applied as a weighting method in order to obtain a scientific weight result by measuring the indirect relationship between nodes and expected relationship among Twitter relation between users in a group. The results of this thesis show that the use of the PAI is able to affect any relation weights between nodes. The relation weights between nodes show the corresponding to the ratio of the observed value of the relationship with the expected value of relationships between nodes, and this results able to determine the expected popular Twitter users in a group by implementing eigenvector centrality.

Keywords : *Social Network Analysis, eigenvector centrality, Probabilistic Affinity Index, centrality measurement*