Performance Analysis of Molecular Complex Detection in Social Network Datasets

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 175
-
Number 4

Year of Publication: 2017

Authors:

Neny Sulistianingsih, Edi Winarko

10.5120/ijca2017915509

Abstract

Reseaches related graph dataset conducted for years. One of its main topics was community detection. The development of algorithms to do community detection continuously conducted by adjusting characteristics of datasets used. One of which is Molecular Complex Detection (MCODE) algorithm used to community detection in a dataset of protein-protein interaction (PPI). However, use of the algorithm still limited to PPI dataset only. The aim of this research was to conducted experiment usage of MCODE algorithm in other datasets such us social network datasets. An experiment conducted by comparing the performance of MCODE with other benchmark algorithms such us Label Propagation and Girvan-Newman. From the experiment performed was resulted that for modularity MCODE showed the best result when compared with others, followed Girvan-Newman and Label Propagation with its values were 0.67, 0.66 and 0.46, respectively. Furthermore, for a testing parameter such us running time and average clustering coefficient, MCODE showed better result compared with Girvan-Newman and Label Propagation. For running time, MCODE needed mean time as 0.053 s, Girvan-Newman as 0.056 s and Label Propagation as 0.078 s and for test parameter of
average clustering coefficient, MCODE was 0.37, Girvan-Newman was 0.44 and Label Propagation was 0.46.

References


Index Terms

Computer Science Information Sciences

Keywords

Community Detection, Girvan-Newman, Molecular Complex Detection, Label Propagation.