Lab05 – Exercise 2

Contents

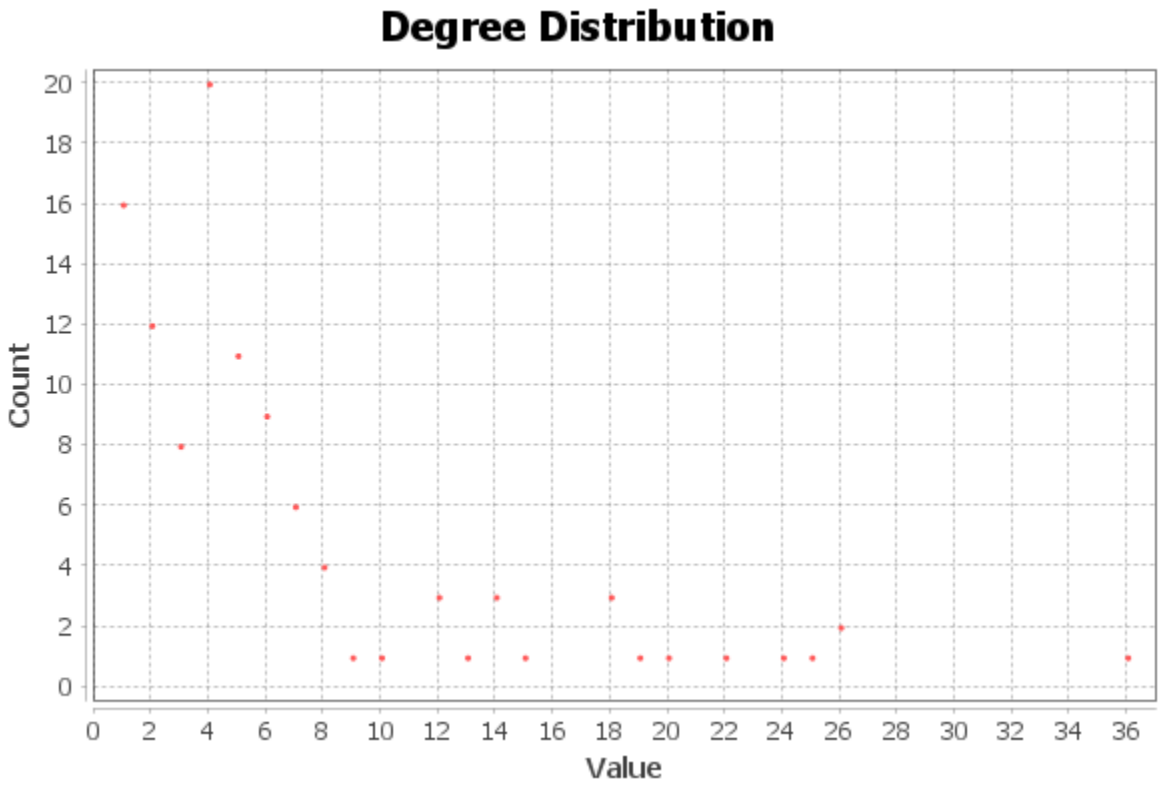
Phân tích cấu trúc mạng tính toán và so sánh các độ đo tính trung tâm (centrality measures)

1. Degree centrality

Degree Report

Results:

Average Degree: 6.579



2. Betweenness centrality

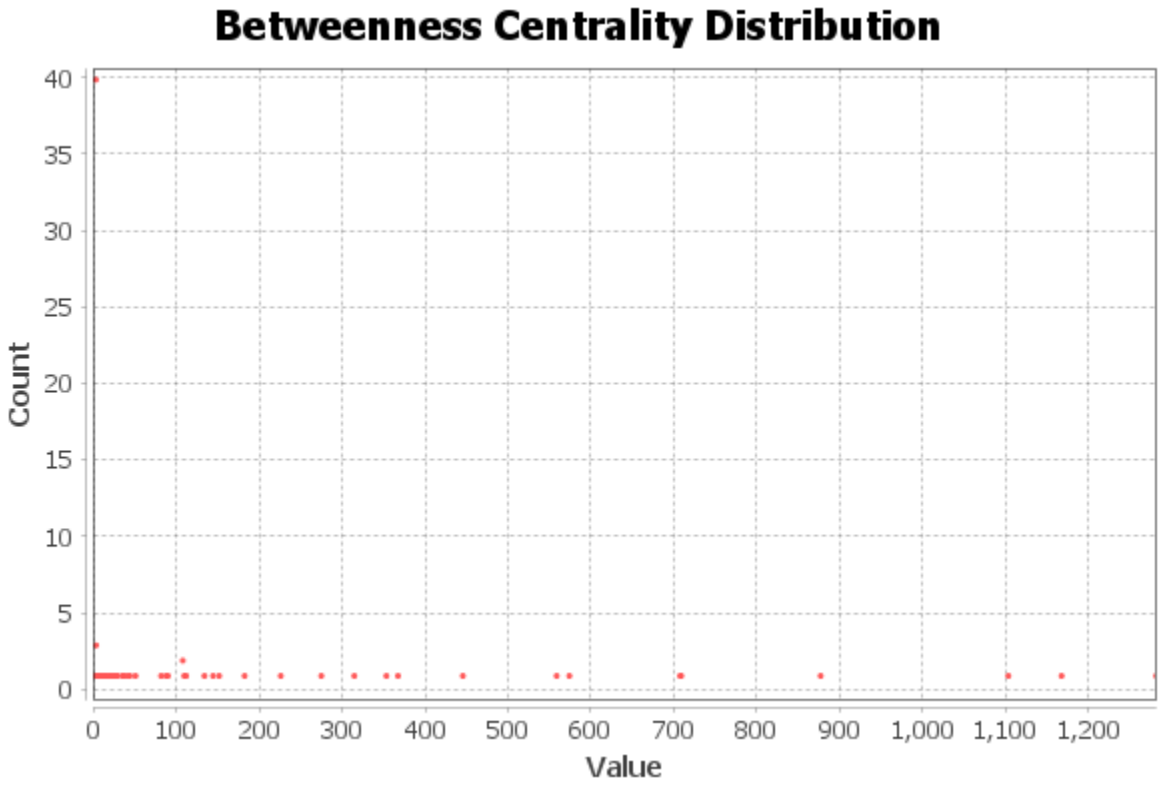
Graph Distance Report

Parameters:

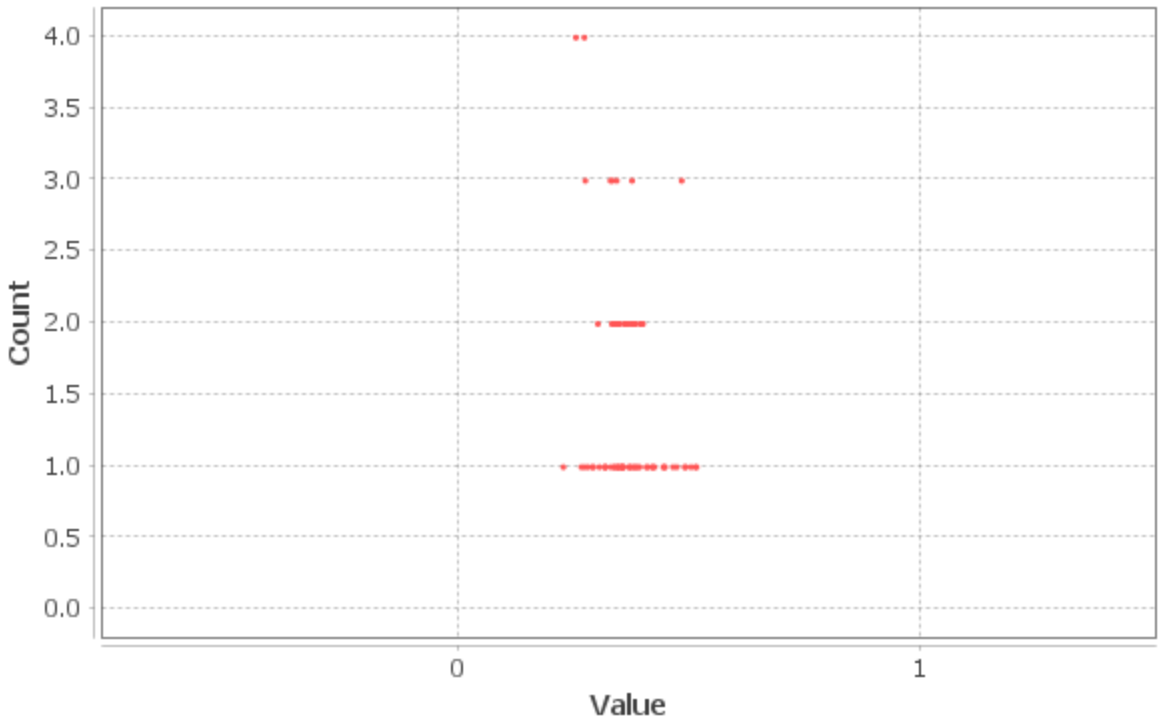
Network Interpretation: undirected

Results:

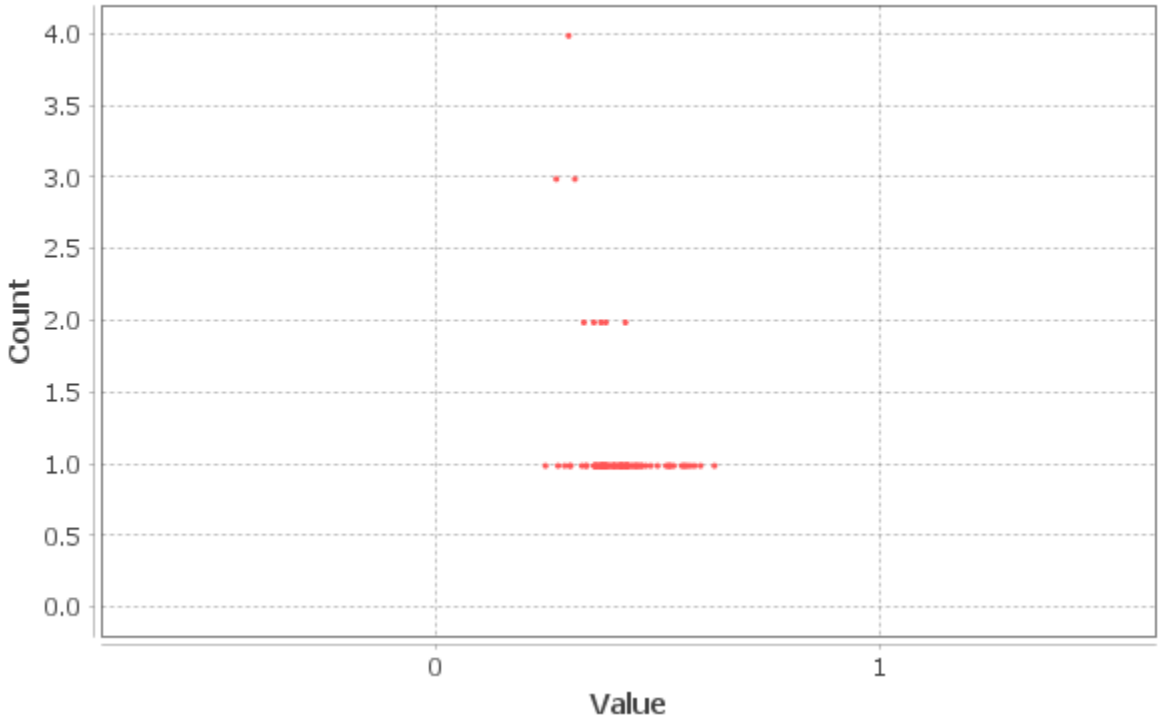
Diameter: 6
Radius: 3
Average Path length: 2.903897019925939

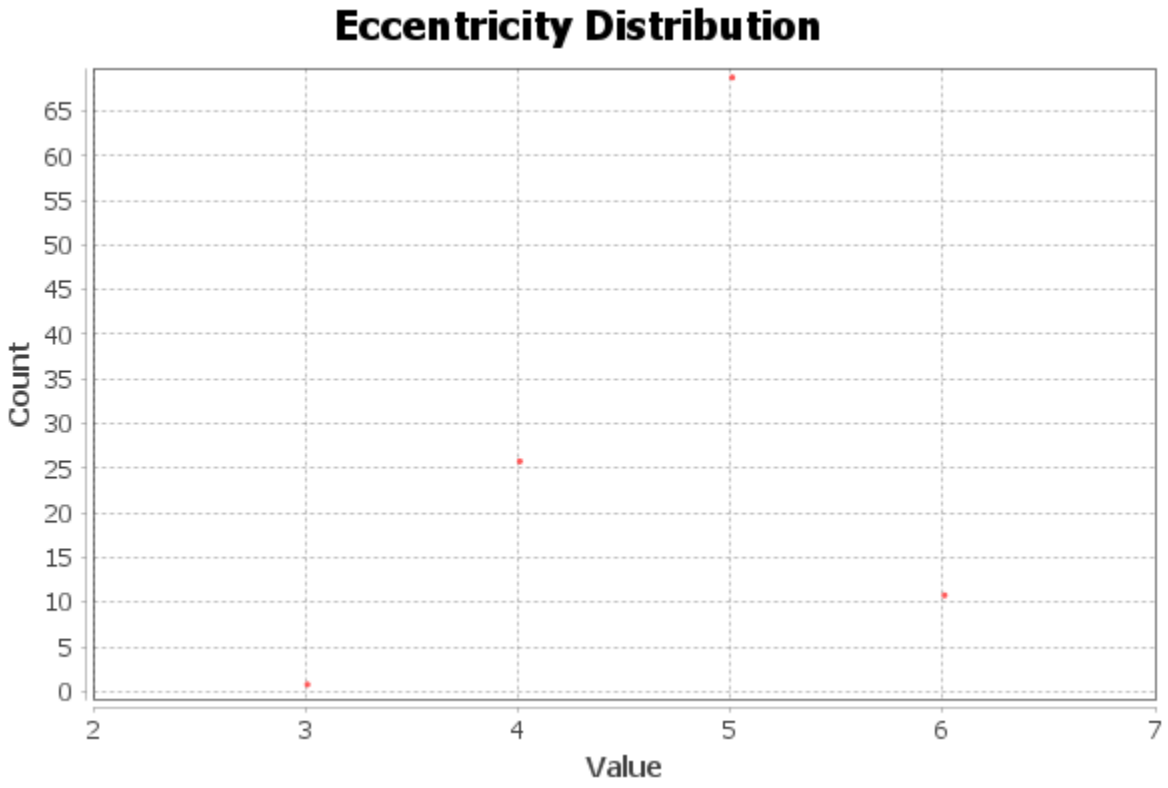


Closeness Centrality Distribution



Harmonic Closeness Centrality Distribution



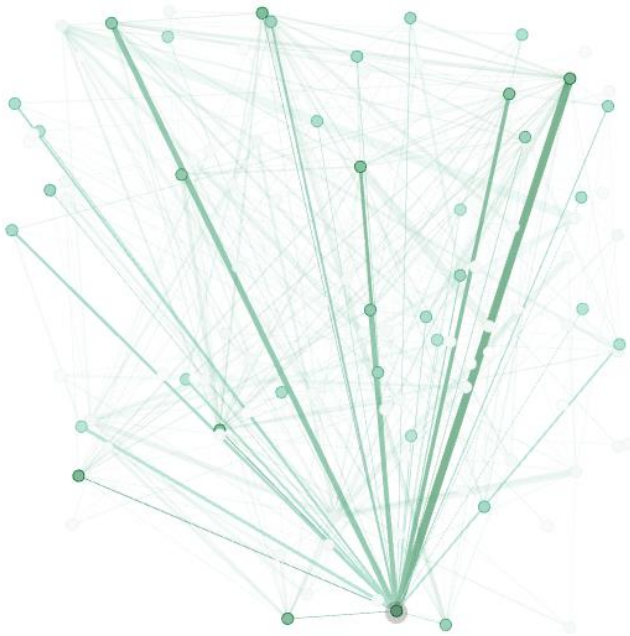


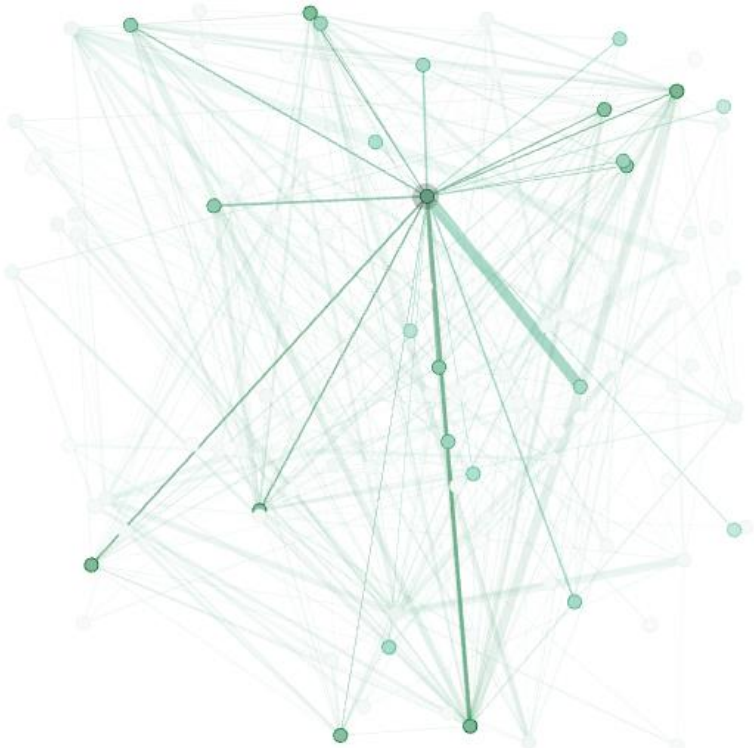
Algorithm:

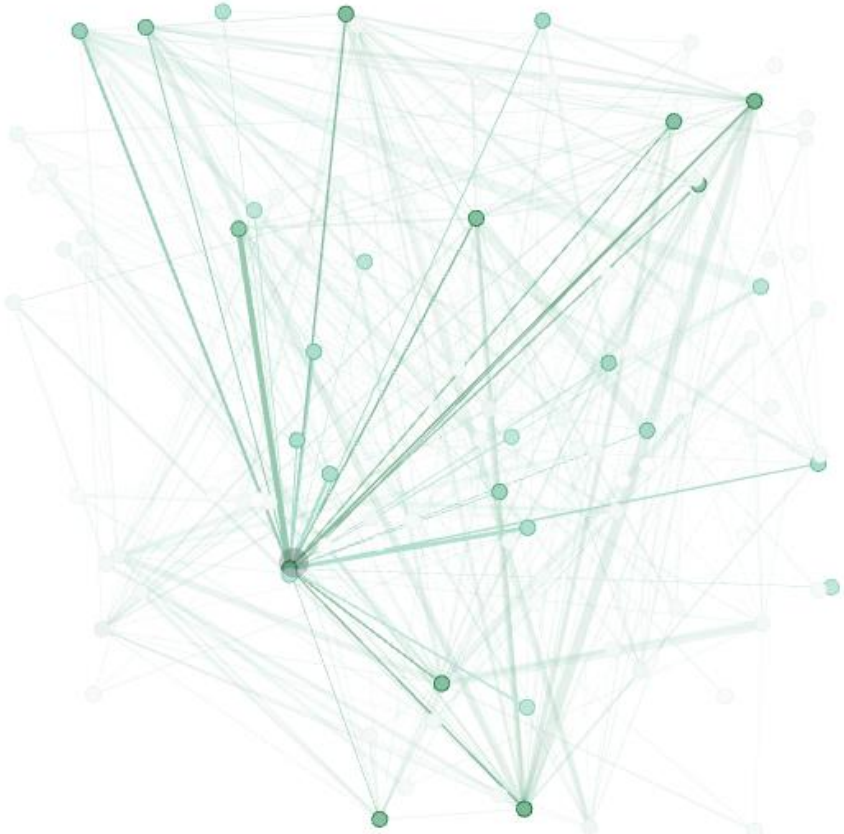
Ulrik Brandes, *A Faster Algorithm for Betweenness Centrality*, in Journal of Mathematical Sociology 25(2):163-177, (2001)

3. Closenes centrality

- Top 3







Phát hiện cộng đồng – Prediction

1. Louvain

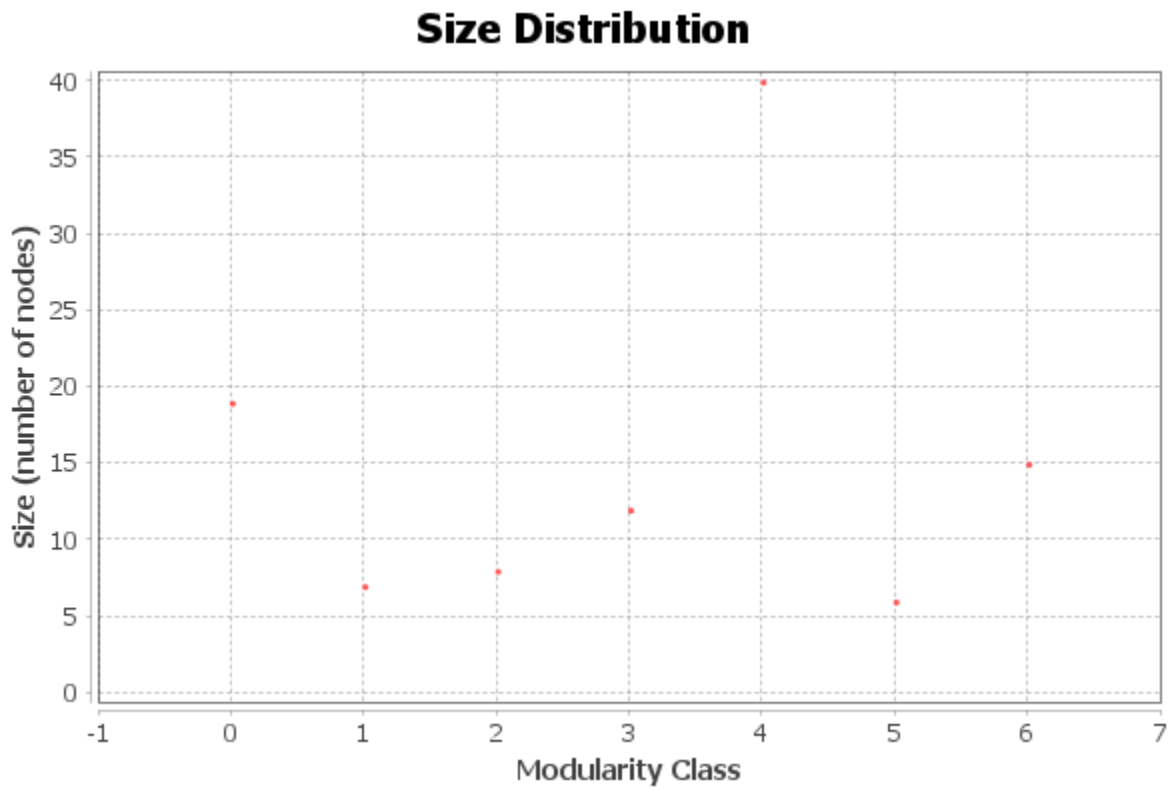
Modularity Report

Parameters:

Randomize: On
Use edge weights: On
Resolution: 1.0

Results:

Modularity: 0.600
Modularity with resolution: 0.600
Number of Communities: 7

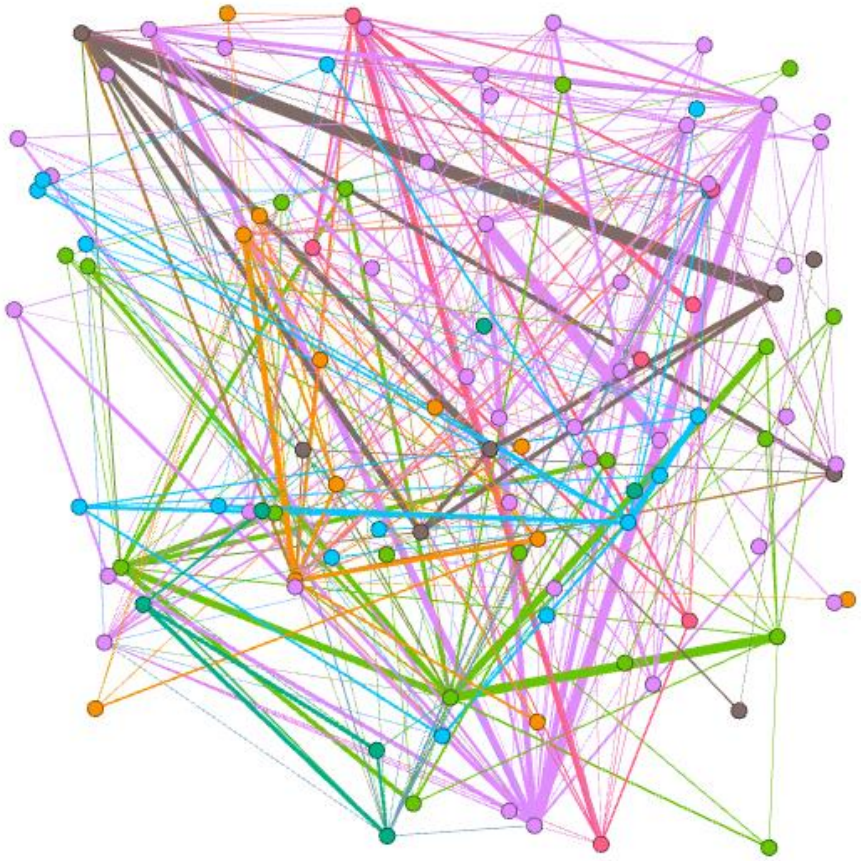


Algorithm:

Vincent D Blondel, Jean-Loup Guillaume, Renaud Lambiotte, Etienne Lefebvre, *Fast unfolding of communities in large networks*, in Journal of Statistical Mechanics: Theory and Experiment 2008 (10), P1000

Resolution:

R. Lambiotte, J.-C. Delvenne, M. Barahona *Laplacian Dynamics and Multiscale Modular Structure in Networks 2009*



2. Girvan-newman

Girvan-Newman Report

Parameters:

Respect edge type for shortest path betweeness: no

Respect parallel edges for shortest path betweeness: no

Respect edge type for modularity computation: no

Respect parallel edges for modularity computation: no

Processed Graph Data

Nodes: 107

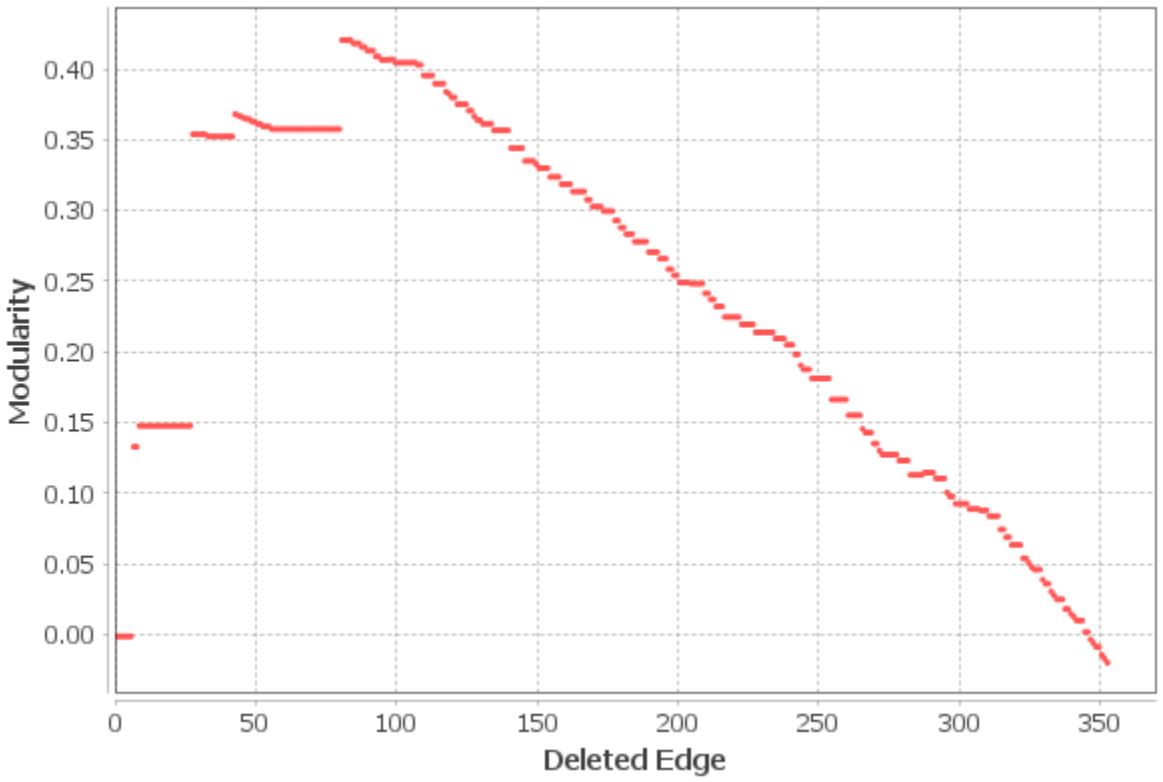
Edges 352

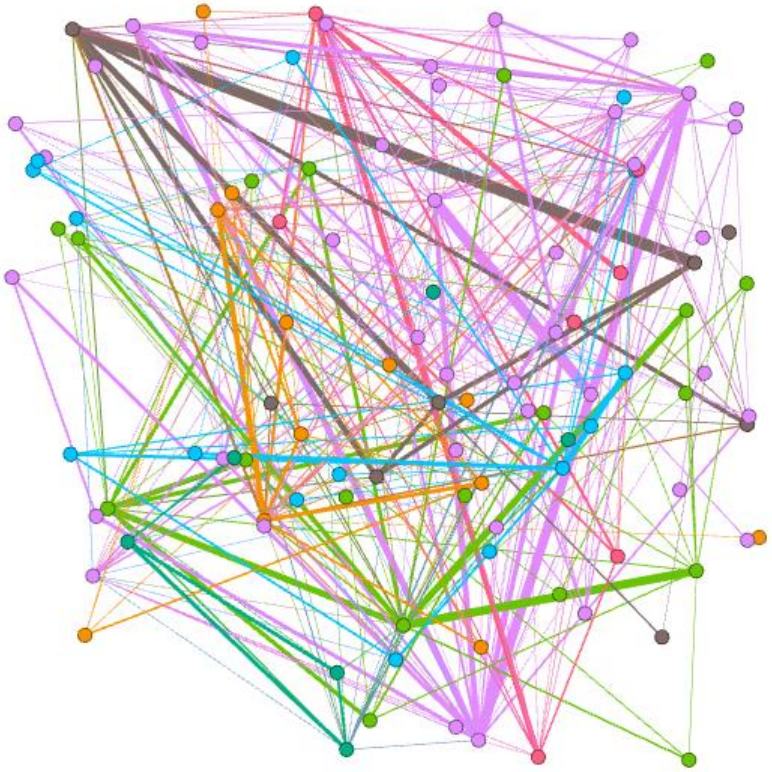
Processing time: 0.599 sec.

Communities

Number of communities: 16

Maximum found modularity: 0.4221131





3. LPA