CM4150 -Recommender Systems

Social Network Link Analysis – Quiz Report

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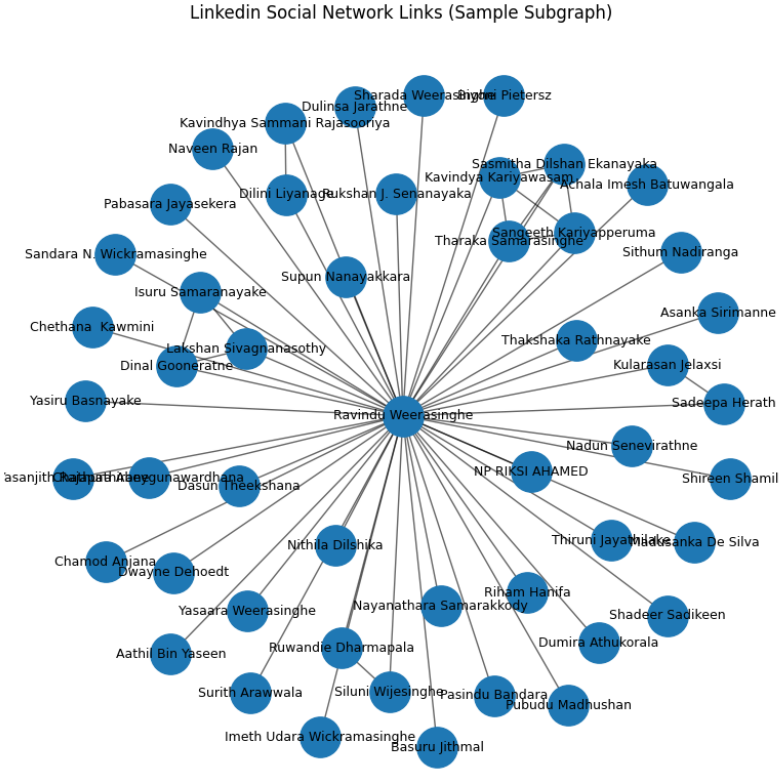
GitHub Link: https://github.com/rtweera/recommender-systems-social-network-analysis

1. LinkedIn data selected.
2. Sample of 50 chosen for visualization, since the entire graph (1400+ nodes) is very difficult to see when plotted.
   Edges are made between my self (Ravindu Weerasinghe) and others. People who are from the same company are also connected to together with an edge.



3.

   i. Performed in code. Summary table of node level measures:

	degree	degree_centrality	closeness_centrality	betweenness_centrality	eigenvector_centrality	clustering_coefficient
Ravindu Weerasinghe	1426	1.000000	1.000000	0.989627	0.093696	0.010373
Anuruddha Liyanarachchi	132	0.092567	0.524265	0.000000	0.086626	1.000000
Bhashinee Nirmali	132	0.092567	0.524265	0.000000	0.086626	1.000000
Chathuranga Jayanath	132	0.092567	0.524265	0.000000	0.086626	1.000000
Omindu Rathnaweera	132	0.092567	0.524265	0.000000	0.086626	1.000000

4.

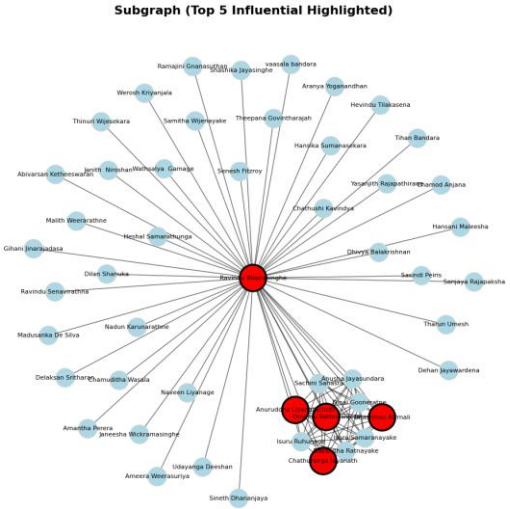
- Most influential connection (eigenvector centrality): Ravindu Weerasinghe, with score 0.0936961273372648
- Person who can bridge different groups (betweenness centrality): Ravindu Weerasinghe, with score 0.9896272237395733
- Based on mean clustering coefficient of 0.5606, friends are tightly connected.
- Based on mean degree centrality of 0.0118, the network is distributed.

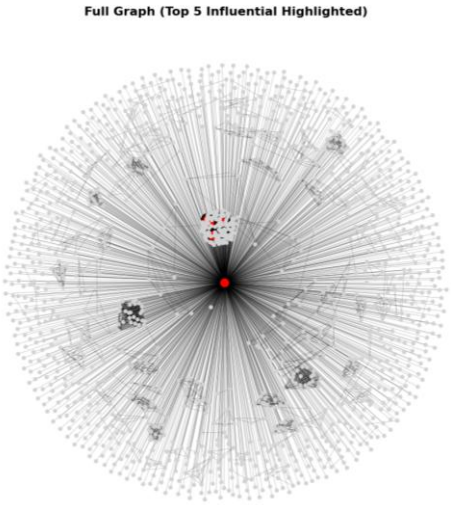
5.

i. Top 5 influential nodes

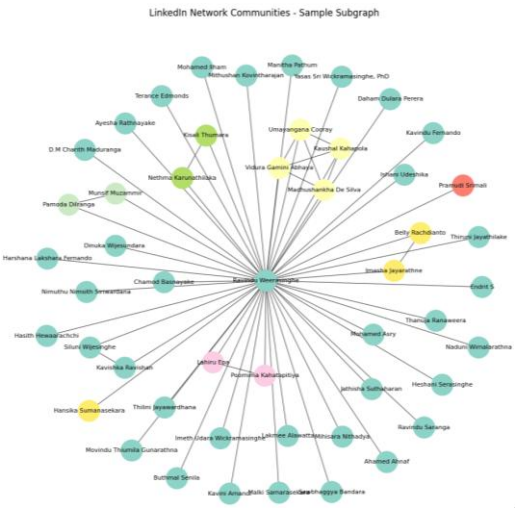
Top 5 Influential Nodes (Eigenvector):

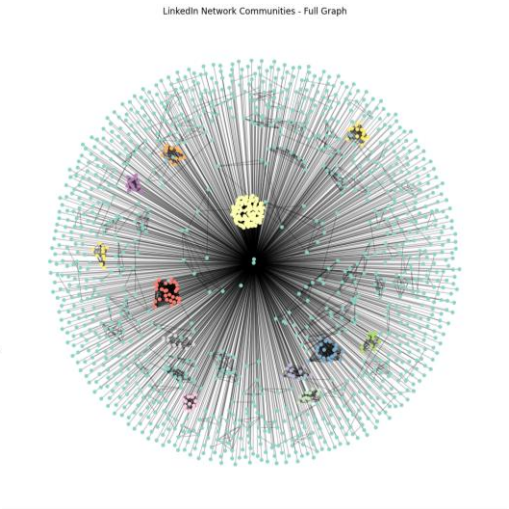
1. Ravindu Weerasinghe: 0.093696
2. Anuruddha Liyanarachchi: 0.086626
3. Bhashinee Nirmali: 0.086626
4. Chathuranga Jayanath: 0.086626
5. Omindu Rathnaweera: 0.086626





ii. Communities (using Louvain Method)





6. Network structure when top influential node is removed