ELL 880 – Social Network Analysis – Fall 2024

ASSIGNMENT 1

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PART A – Dataset: [1000 Richest People in the World](#)

This dataset provides detailed information about the 1000 richest people in the world, including their names, countries, industries, net worth, companies, and more. This data is designed to help analyse the distribution of wealth among the top billionaires globally and to provide insights into the industries and regions that produce the wealthiest individuals.
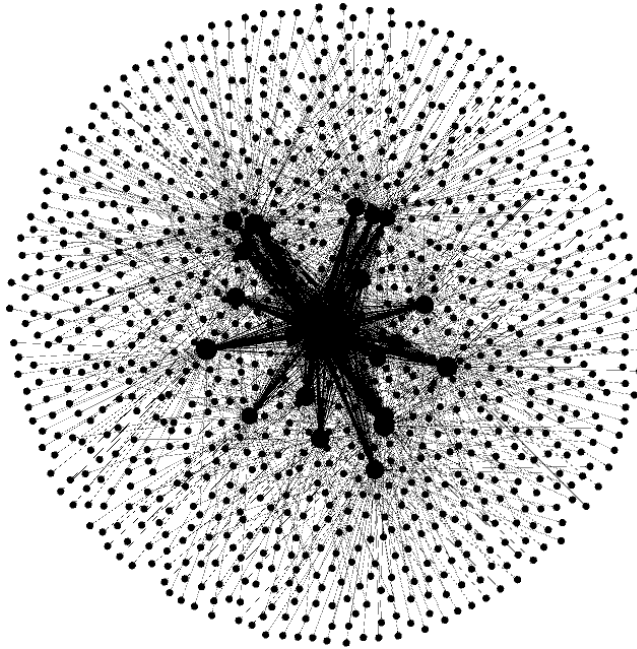
PART B – Tools

2. Calculate the Degree Distribution

Average Degree: 1.516

Degree Distribution
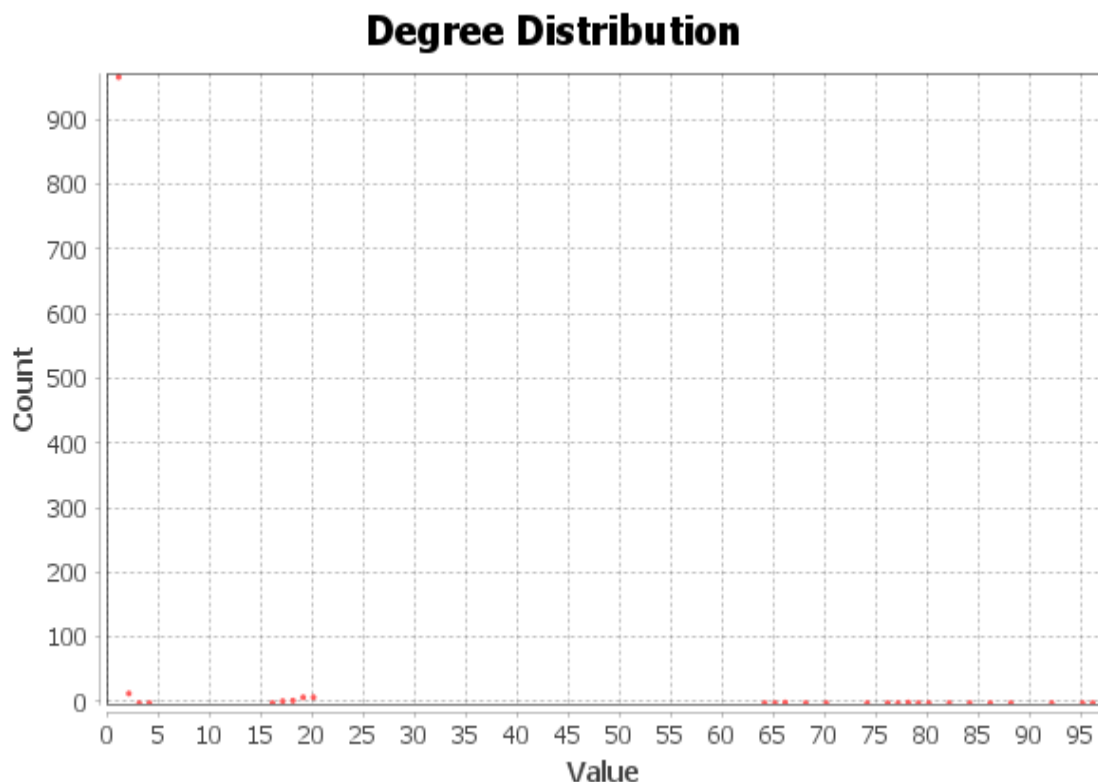
I) <u>Assign sizes to vertices based on their total degree</u>.

Minimum degree size assigned is 10 and maximum size range is 30.
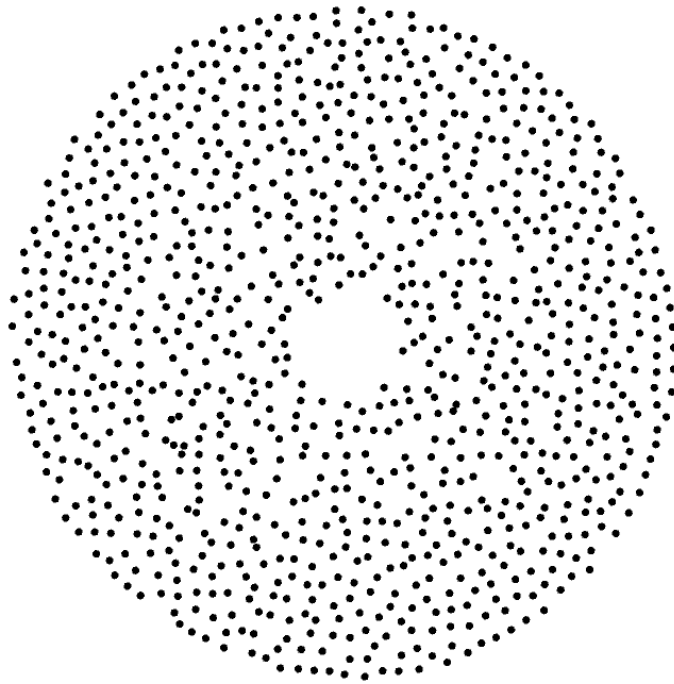
Total nodes = 1032 and edges = 1564.

3. <u>Filter the network by degree such that only the</u>:

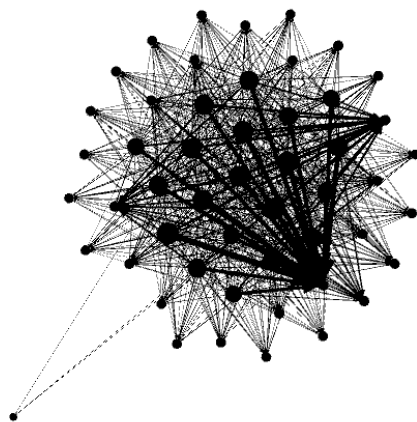**I) <u>Bottom 10% of nodes and connections among them are visible</u>.**

Degree range for 10% is 1-1, so the graph would look like,

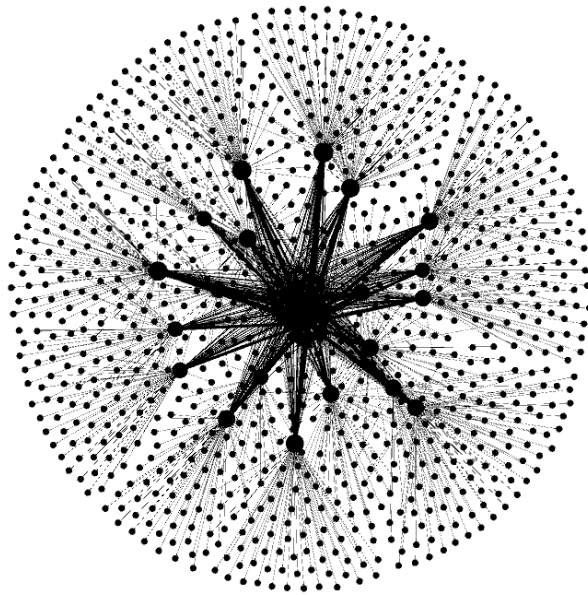Total 965 nodes will be visible because this much of nodes fall under this range. Edges =0.

II) <u>Top 5% of nodes and connections among them are visible</u>.

Nodes are 51 and edges are 567.

Union View of both Sub-Graph:
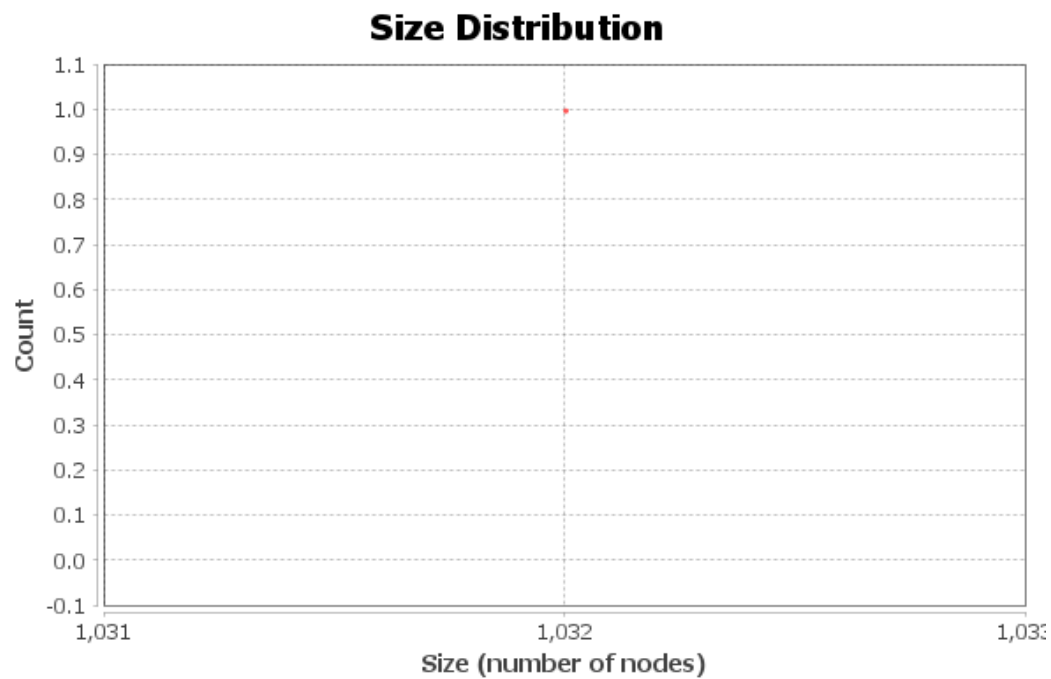

4. Find:

I) All the connected components in the network.

Number of Weakly Connected Components: 1

Number of Strongly Connected Components: 1032

II) The size of the Giant component in the network.

The size of the Giant fully connected component is 1032 nodes.

Size Distribution

PART C – **Now do the same exercise using the library.**

LINK to Google Colab:

https://colab.research.google.com/drive/1r8HPAArhxVnUbJ_0s3Og-xujaiOgiAXr#scrollTo=4Vvp4GVY0x-G