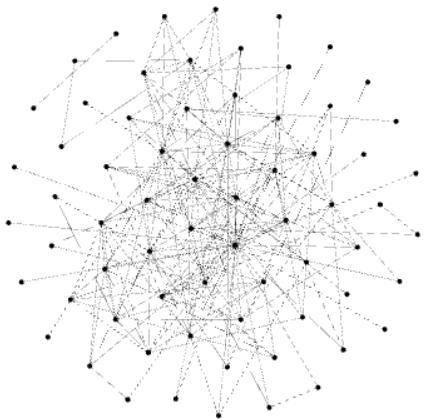


**1<sup>ST</sup> TASK**

# **NON-CONSPIRACY graph -840 (Normal Twitter Community)**



Context X

**Nodes:** 68

**Edges:** 343

**Directed Graph**

Indicates network size and overall activity.

Large node/edge count = active community with many interactions.

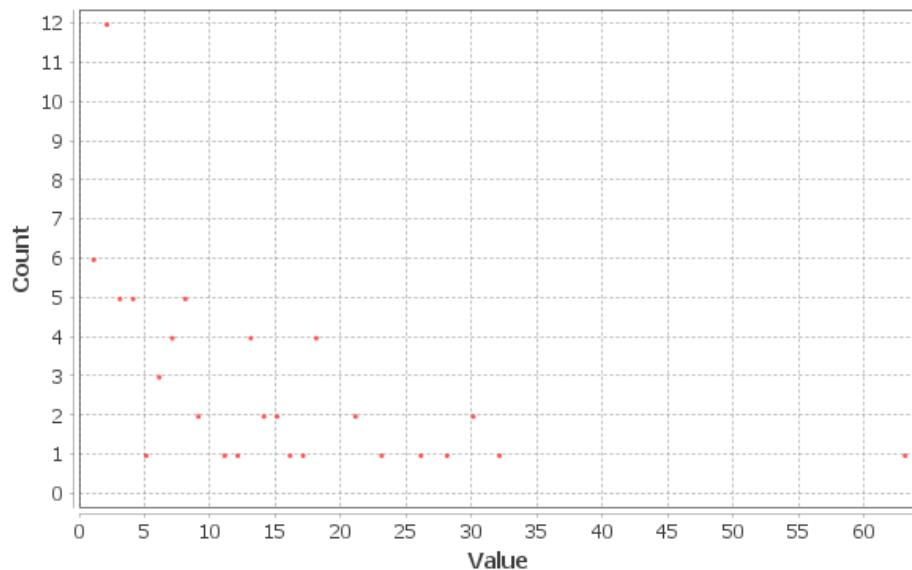
Average degree:

Average number of connections per user.

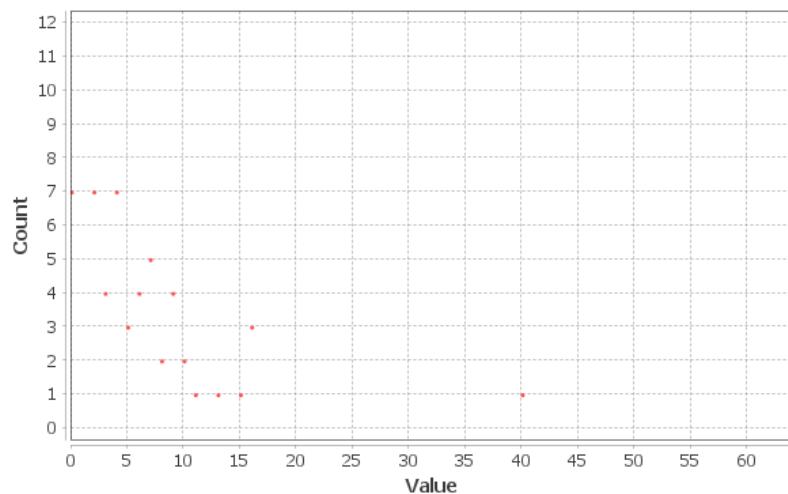
Higher degree = more engagement, replies, mentions.

Average Degree: 5.044

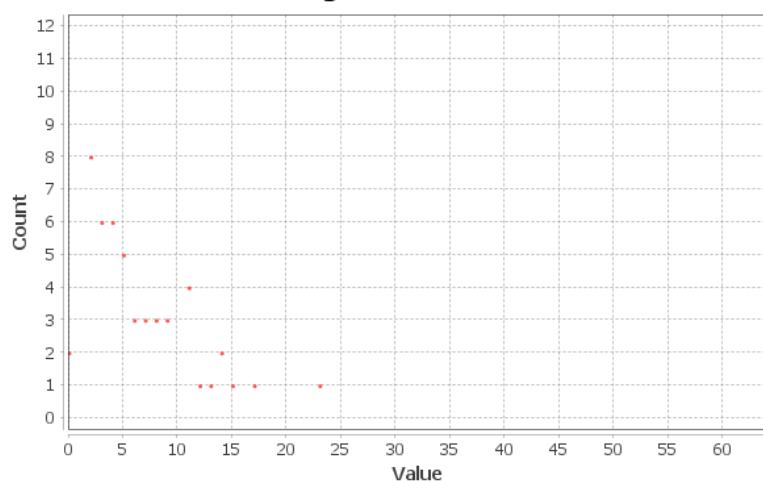
### Degree Distribution



### In-Degree Distribution



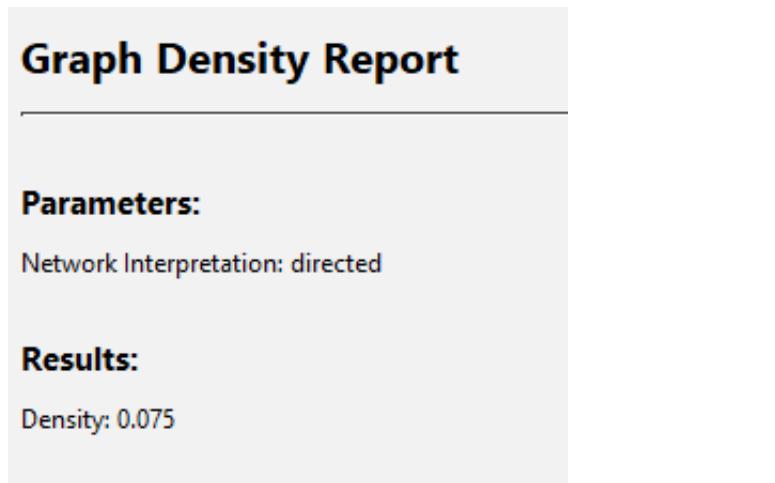
### Out-Degree Distribution



Graph Density:

Density = (actual edges) ÷ (possible edges)

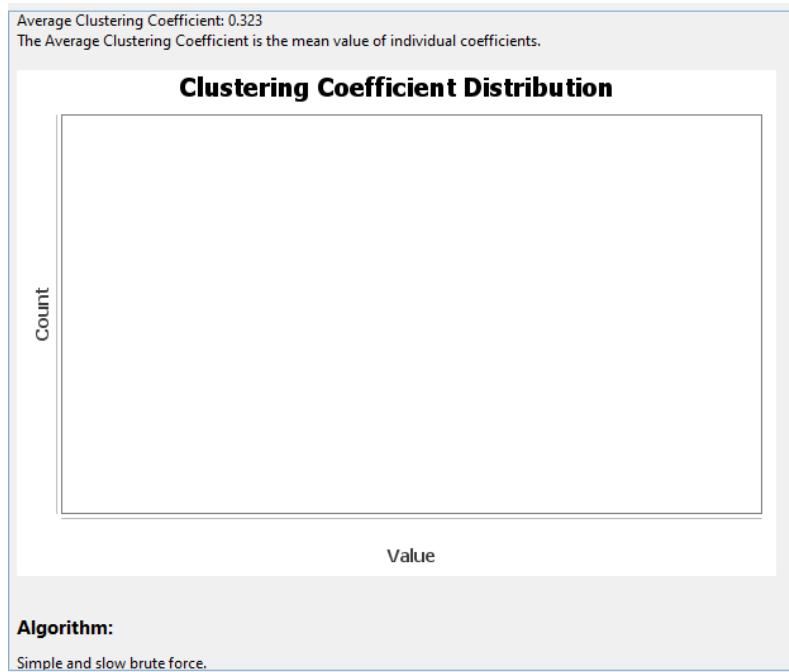
Low density is normal for Twitter because not everyone interacts with everyone



average clustering coefficient:

Likelihood that a user's connections also interact with each other.

Higher clustering = more local conversation circles.



Modularity:

Measures how well the network separates into groups.

Higher modularity = clear topic-based or interest-based clusters.

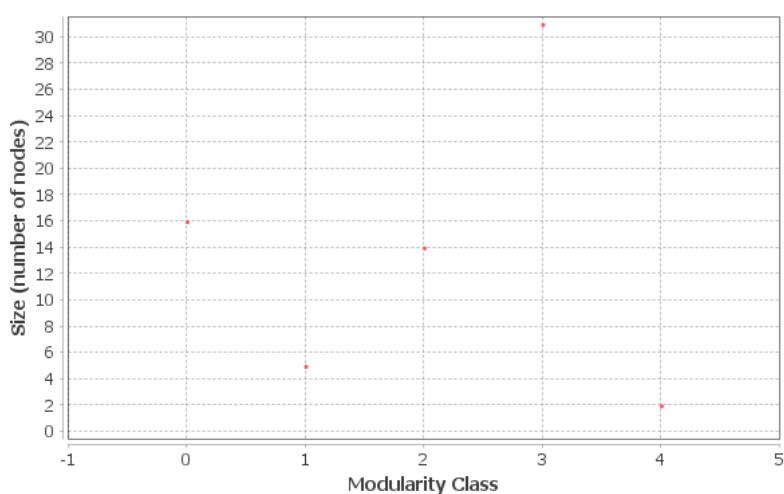
## Results:

Modularity: 0.344

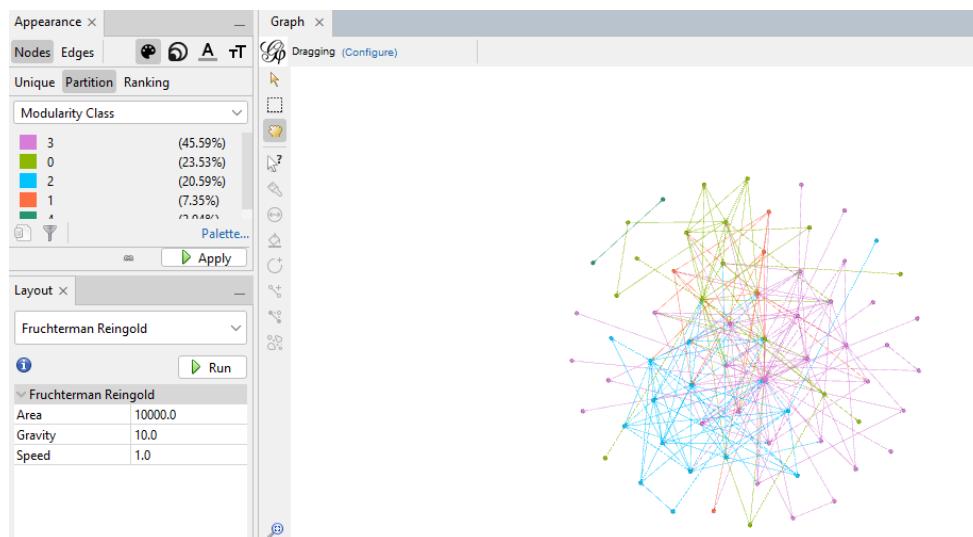
Modularity with resolution: 0.344

Number of Communities: 5

**Size Distribution**



color nodes by community:



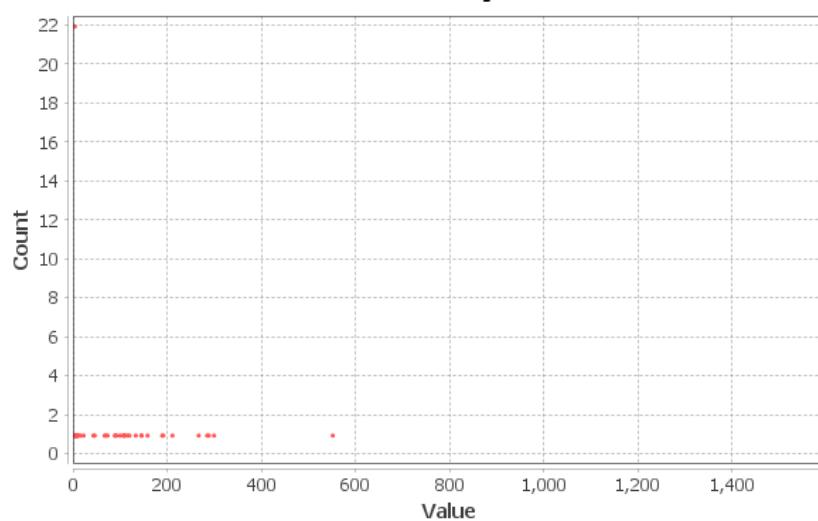
Centrality (Betweenness & Closeness)

**Results:**

Diameter: 6

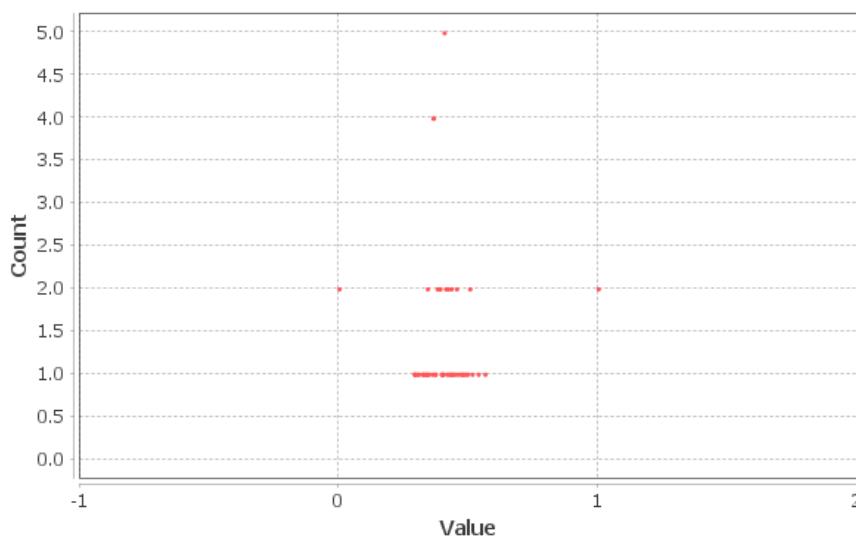
Radius: 0

Average Path length: 2.554420854608976

**Betweenness Centrality Distribution**

Betweenness Centrality: Shows which nodes act as bridges.

High values mean users who connect separate discussion groups.

**Closeness Centrality Distribution**

closeness Centrality: Measures how easily a node can reach all others.

High closeness = influential nodes that spread information quickly.

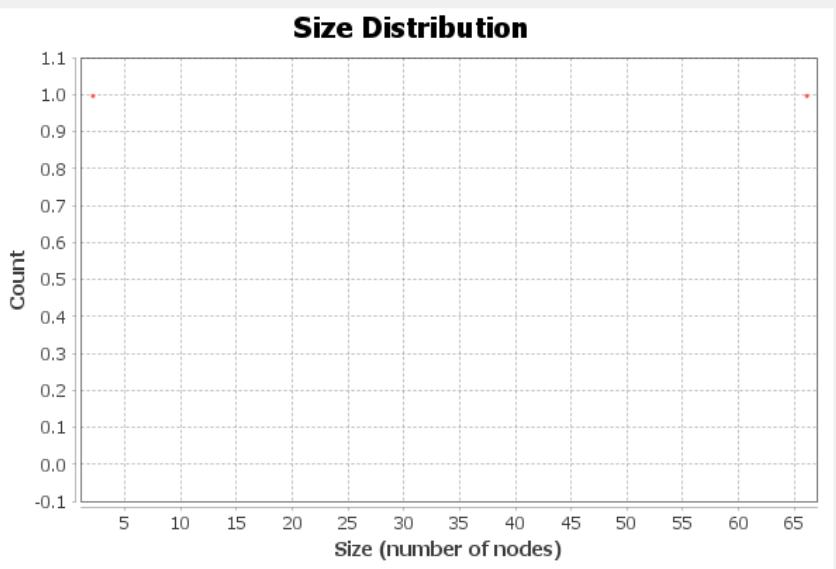
connected components:

Represents isolated clusters in the network.

Fewer components = more unified conversation.

**Results:**

Number of Weakly Connected Components: 2  
Number of Strongly Connected Components: 11



## 5G-CONSPIRACY graph-25 (Misinformation Subgraph)



**Nodes:** 6

**Edges:** 10

**Directed Graph**

very small with minimal interaction.

Indicates weak or dying misinformation thread.

Average Degree:

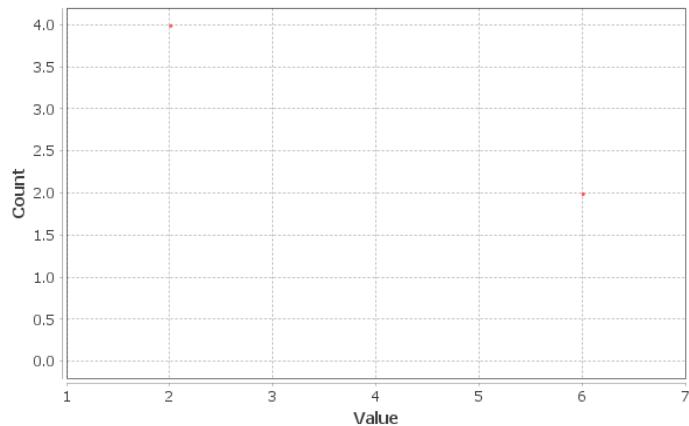
Low degree = users barely interact.

Rumor clusters often form around isolated retweets or one-way mentions.

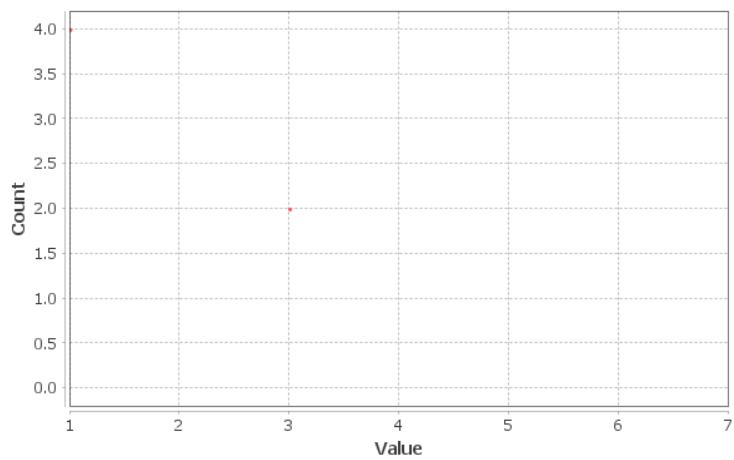
## RESULTS

Average Degree: 1.667

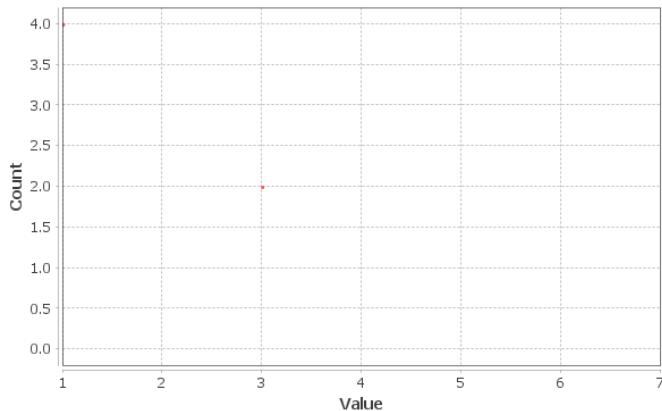
### Degree Distribution



### In-Degree Distribution



### Out-Degree Distribution



Graph Density: Despite being small, density is still low.

Suggests weak internal communication.

# Graph Density Report

## Parameters:

Network Interpretation: directed

## Results:

Density: 0.333

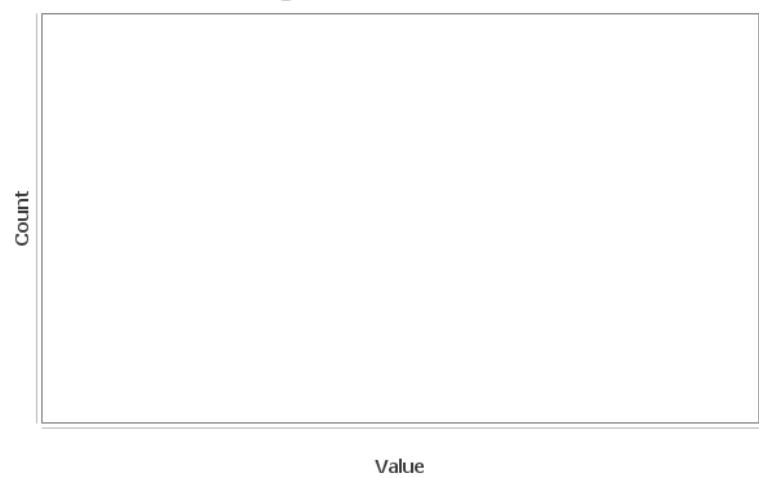
Average clustering coefficient: Often **0.0** in misinformation fragments.

Users talking separately, not forming conversation circles.

Average Clustering Coefficient: 0.000

The Average Clustering Coefficient is the mean value of individual coefficients.

### Clustering Coefficient Distribution



Modularity: High number of communities despite tiny size = strong fragmentation.

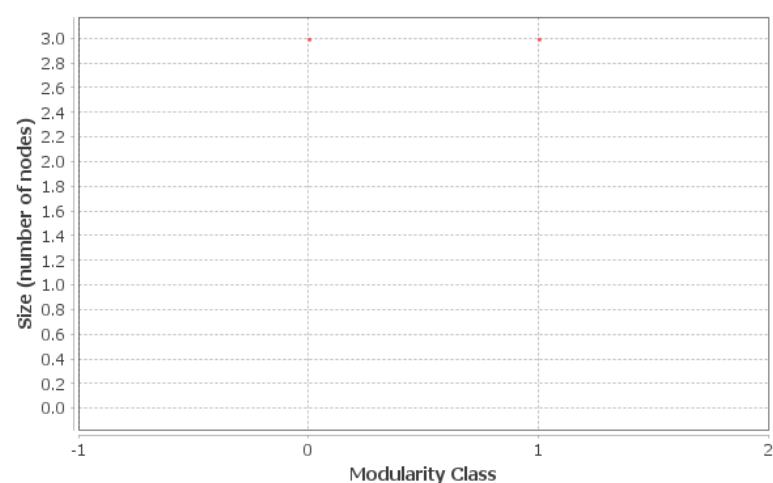
Each mini-cluster is isolated.

Modularity: 0.300

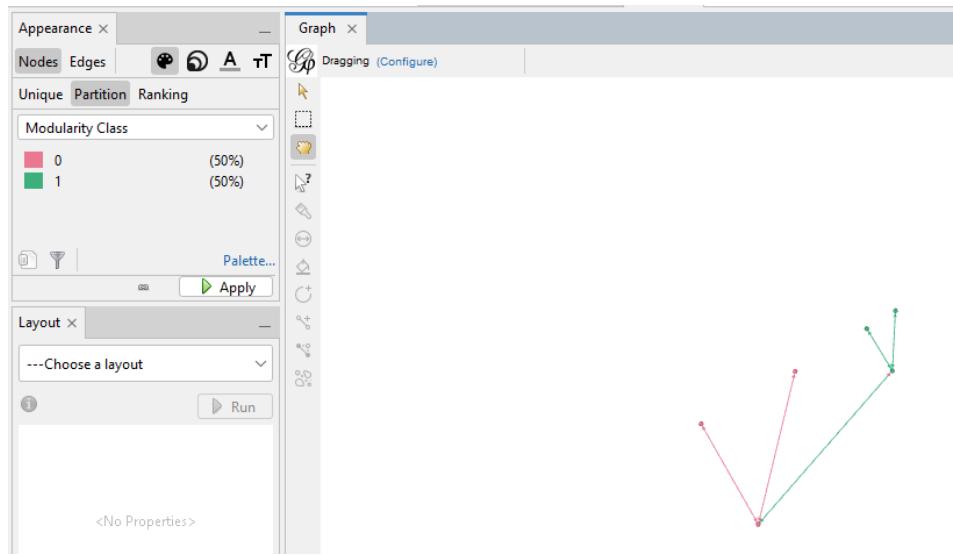
Modularity with resolution: 0.300

Number of Communities: 2

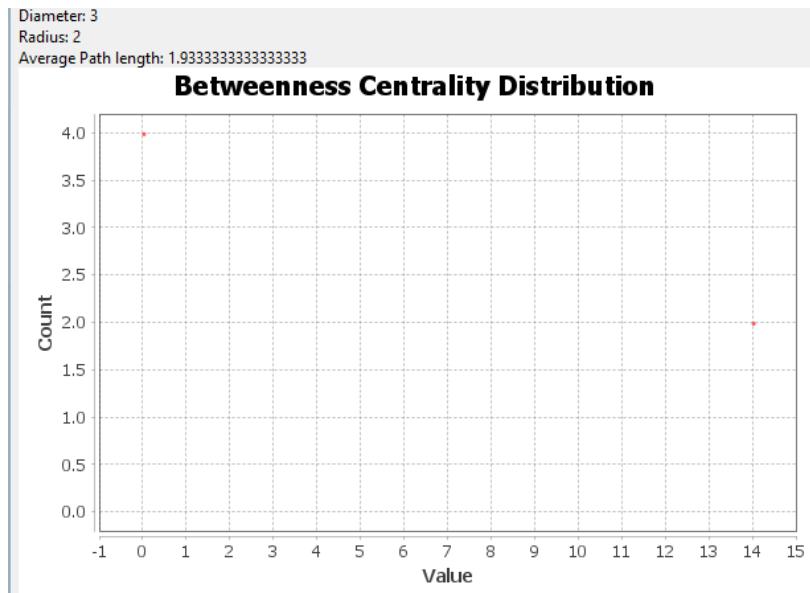
### Size Distribution



color nodes by community:

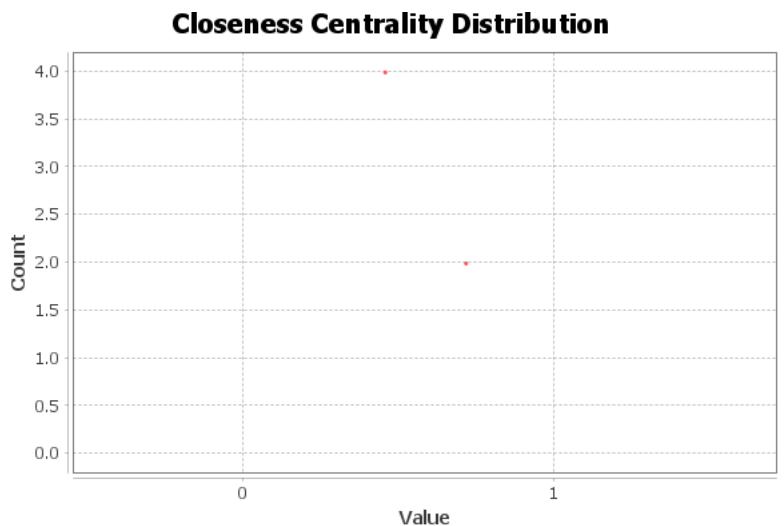


## Centrality (Betweenness & Closeness)



**Betweenness Centrality:** Mostly zero.

No central hub, no bridging users → misinformation does *not* spread widely.



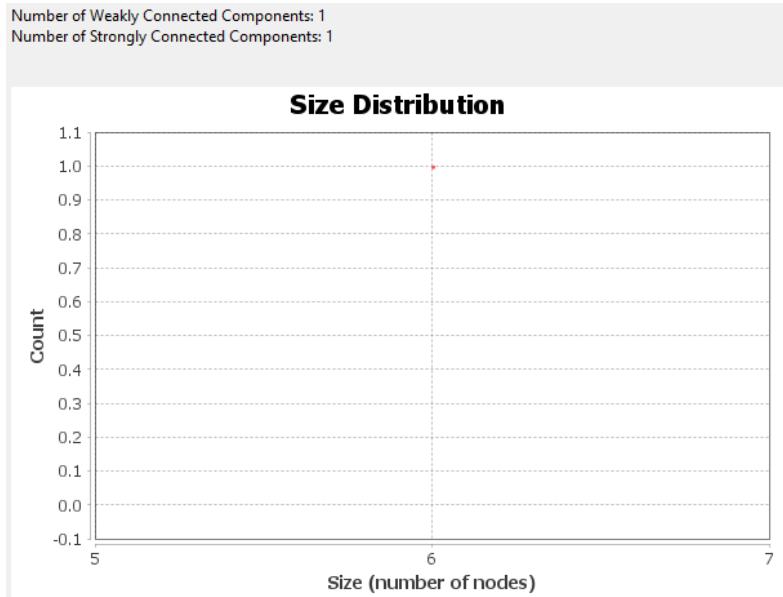
## Closeness Centrality

Highest value per node may reach **1.0**, but this is **local** because the graph is tiny.

Doesn't imply influence; just a measurement artifact of small network

connected components: Many small components.

The graph is scattered and disconnected



Metric	5G-Conspiracy Graph	Non-Conspiracy Graph	Interpretation
<b>Nodes &amp; Edges</b>	Very small	Large	Normal discussion more active
<b>Average Degree</b>	Very low	Moderate	Conspiracy users hardly interact
<b>Density</b>	Low	Low (normal)	Both sparse, but conspiracy extremely sparse
<b>Clustering Coefficient</b>	0.0	Higher	Misinfo cluster has no triangle structure
<b>Modularity</b>	Many tiny communities	Few large communities	Misinfo is fragmented; normal is organized
<b>Betweenness</b>	Mostly zero	Clear hubs	Normal network has information brokers
<b>Closeness</b>	High only because graph is tiny	Varied, meaningful	Misinfo "closeness" is not real influence
<b>Connected Components</b>	Many	Very few	Misinfo graph is broken and disconnected