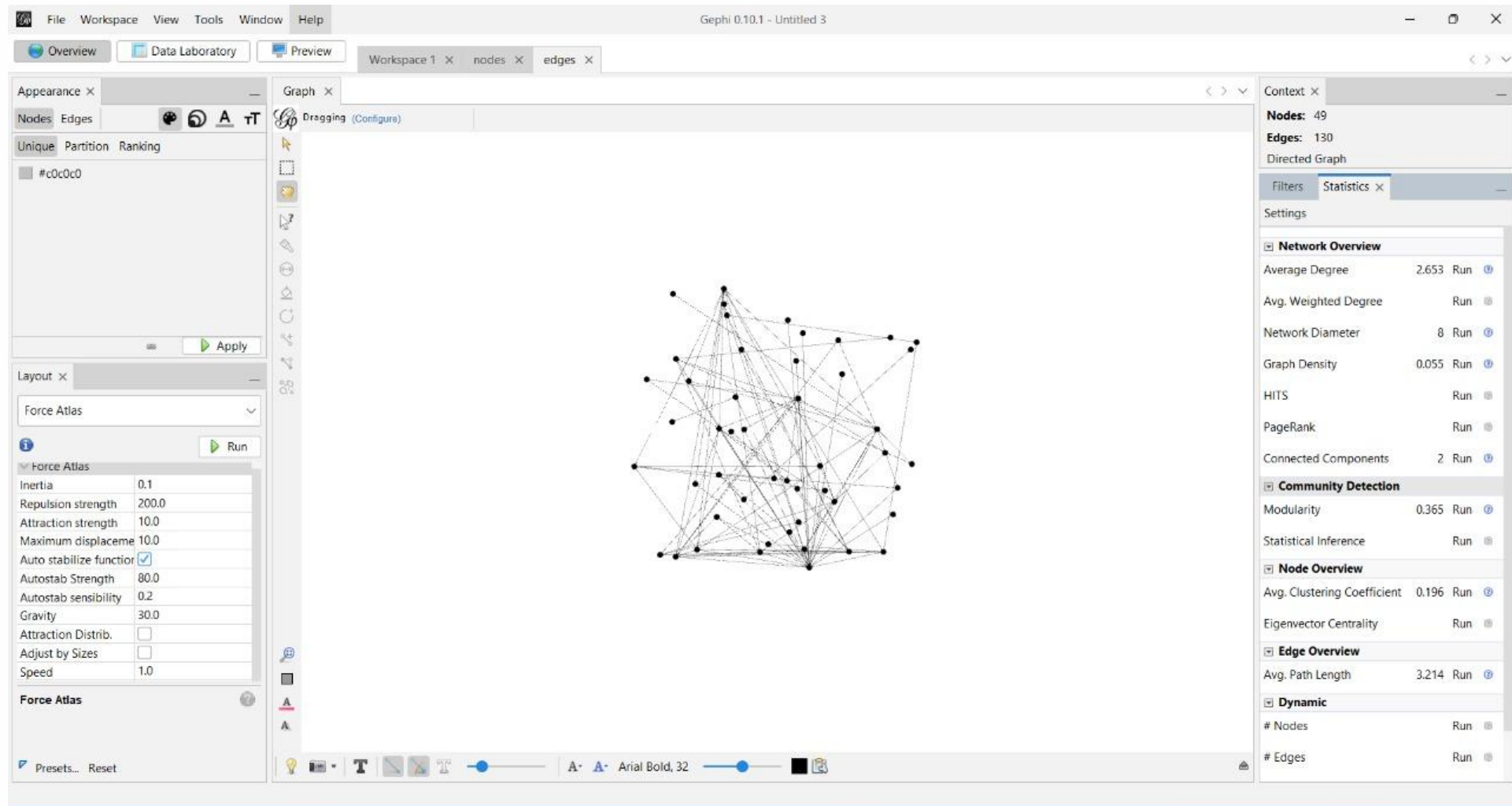# SOCIAL NETWORK REPORT

Comparing Malicious vs. Benign Twitter Subgraphs (WICO Dataset)

Name | Ali Mohamed Oqab
ID | 2205077

1-5G Conspiracy Graph :

Overview :

Graph type: Directed

Number of nodes: 49

Number of edges: 130

Key Network Metrics :

Metric	Value
Average Degree	2.653
Graph Density	0.055
Network Diameter	8
Connected Components	2
Modularity (Q)	0.365
Avg. Clustering Coefficient	0.196
Average Path Length	3.214

Network Metrics Interpretation:

Average Degree (2.65): Low activity; most nodes interact minimally.

Density (0.055): Sparse connections, weak social ties.

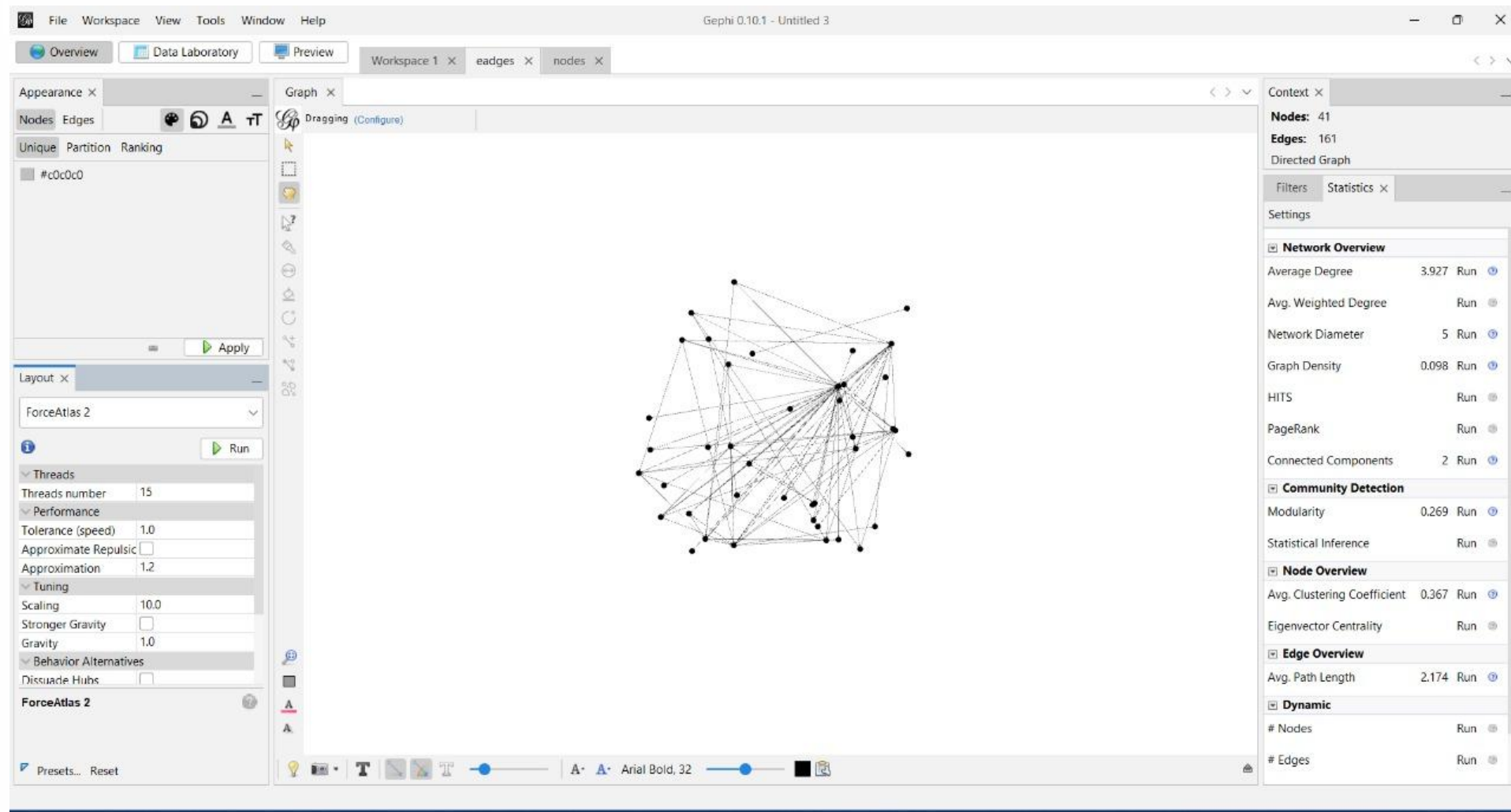**Diameter (8):** Communication passes through many intermediaries, low efficiency.

Connected Components (2): Network has isolated subgroups.

Modularity (0.365): Moderate community separation, echo-chamber behavior.

Clustering Coefficient (0.196): Limited mutual interaction; few triangular connections.

Average Path Length (3.21): Information spreads slowly across the network.

2-Non-Conspiracy Subgraph :

Overview :

Graph type: Directed

Number of nodes: 41

Number of edges: 161

Key Network Metrics :

Metric	Value
Average Degree	3.927
Graph Density	0.098
Network Diameter	5
Connected Components	2
Modularity (Q)	0.269
Avg. Clustering Coefficient	0.367
Average Path Length	2.174

Network Metrics Interpretation:

Average Degree (3.93): Higher activity; nodes communicate actively and reciprocally.

Density (0.098): Denser connections, reflecting frequent interactions.

Diameter (5): Short paths allow faster information flow.

Connected Components (2): Network mostly cohesive with minor isolated subgroups.

Modularity (0.269): Communities are more integrated, less echo-chamber effect.

Clustering Coefficient (0.367): High local interaction; many small-group connections.

Average Path Length (2.17): Information spreads efficiently across the network.

Summary :

The **5G conspiracy network** shows typical misinformation patterns:

> **Fragmented structure**

> **Reliance on a few key nodes**

> **Sparse and brittle connectivity**

> **Clear echo chambers**

The **Non-Conspiracy network** shows:

> **Dense, natural interaction**

> **Strong clustering**

> **Faster and smoother information spread**

> **Interconnected communities**

Conclusion:
They are more fragmented, less clustered, and often rely heavily on central accounts to distribute content — while normal communities show healthy, dense, and organically formed relationships.

THANK YOU