Assignment 1
Social Network Analysis

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Introduction

This report shows the visualization of social networking dataset identifying and show connections, relationships, among individuals and groups and that could be done by using social network analysis (SNA) concept. To choose a tool we did an exploration to fined the best tool and use it and we ended up with Gephi as a tool for social network analysis.

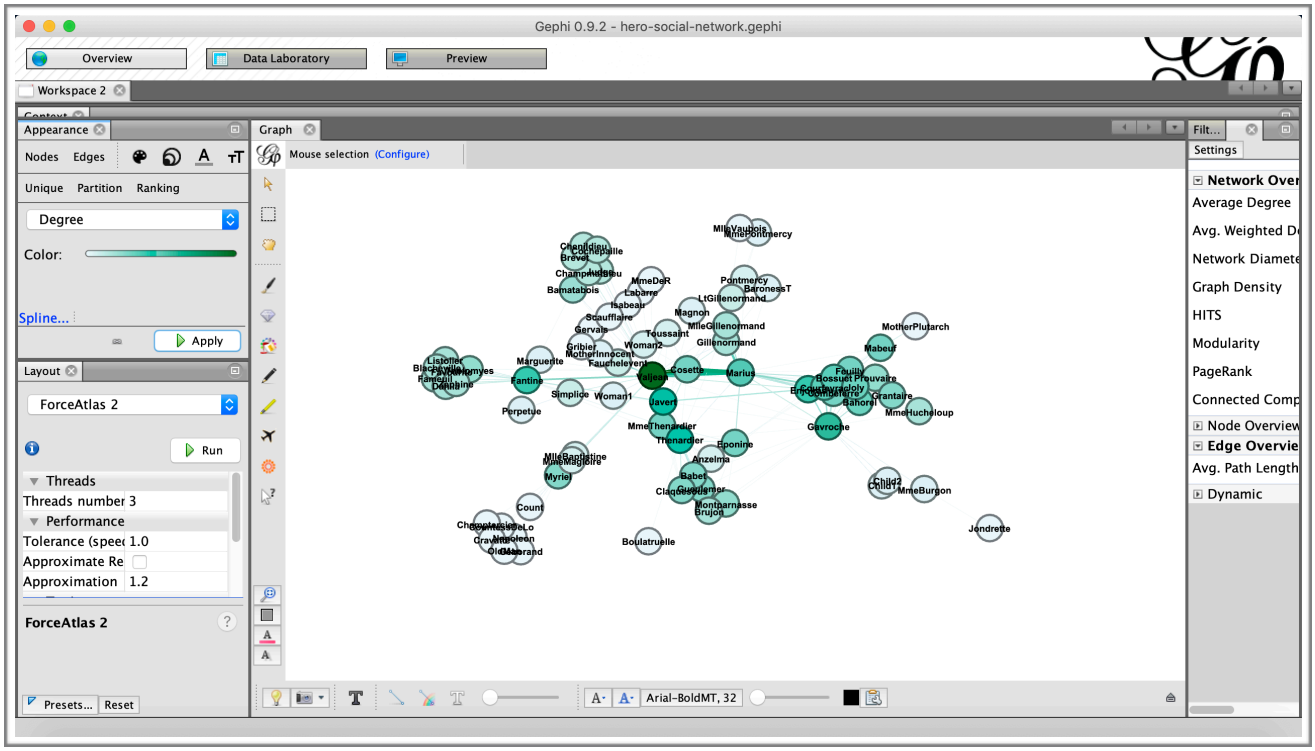
We use Les Misérables novel dataset for Victor Hugo. Les Misérables is a French historical novel by Victor Hugo, first published in 1862, that is considered one of the greatest novels of the 19th century.

This Les Misérables novel dataset contains (77 Nodes and 254 edges) .

Analysis

1. Degree Centrality:

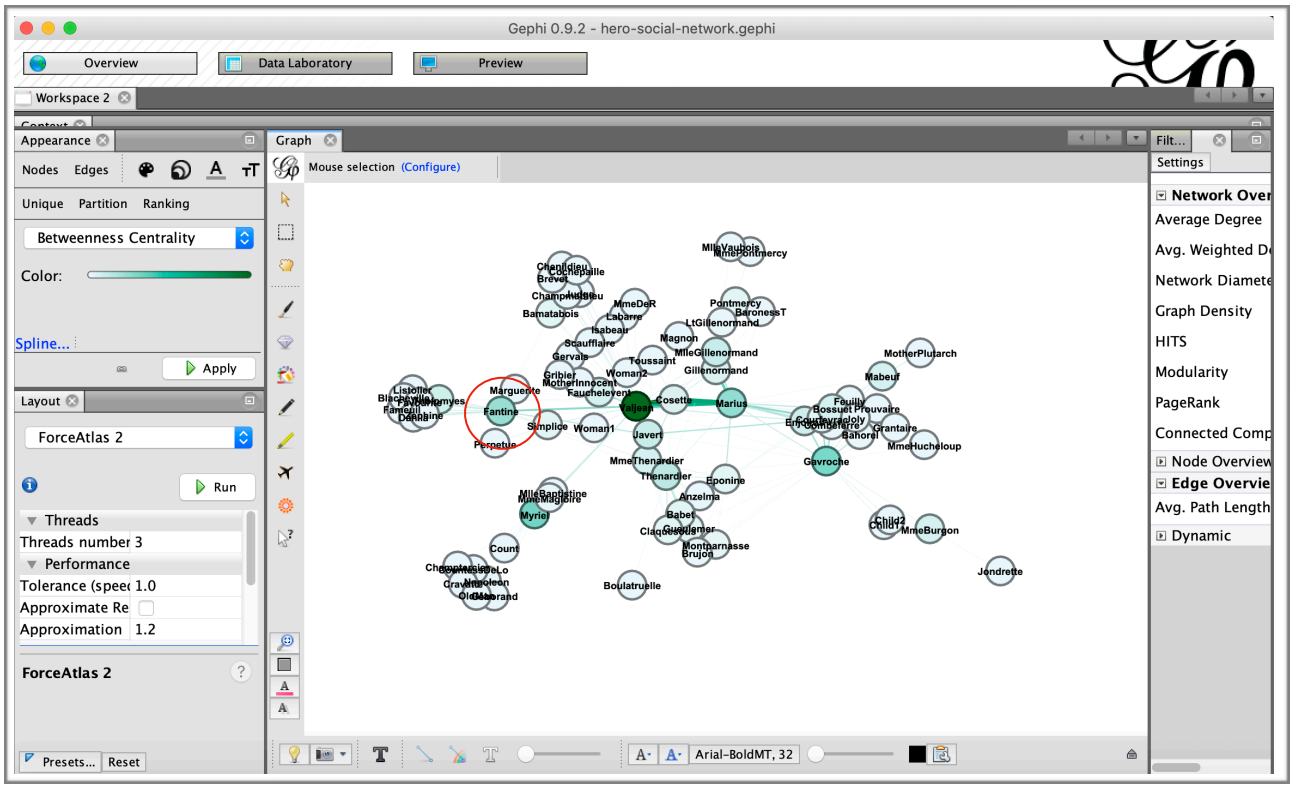
Shows the number of connections the node has also, The nodes with higher degree is more central.



The color is getting darker of the nodes of the characters with high number of connections that a character has. Jean Valjean is the main character based on the number of connection he/she has as showing on the figure.

2. Betweenness Centrality:

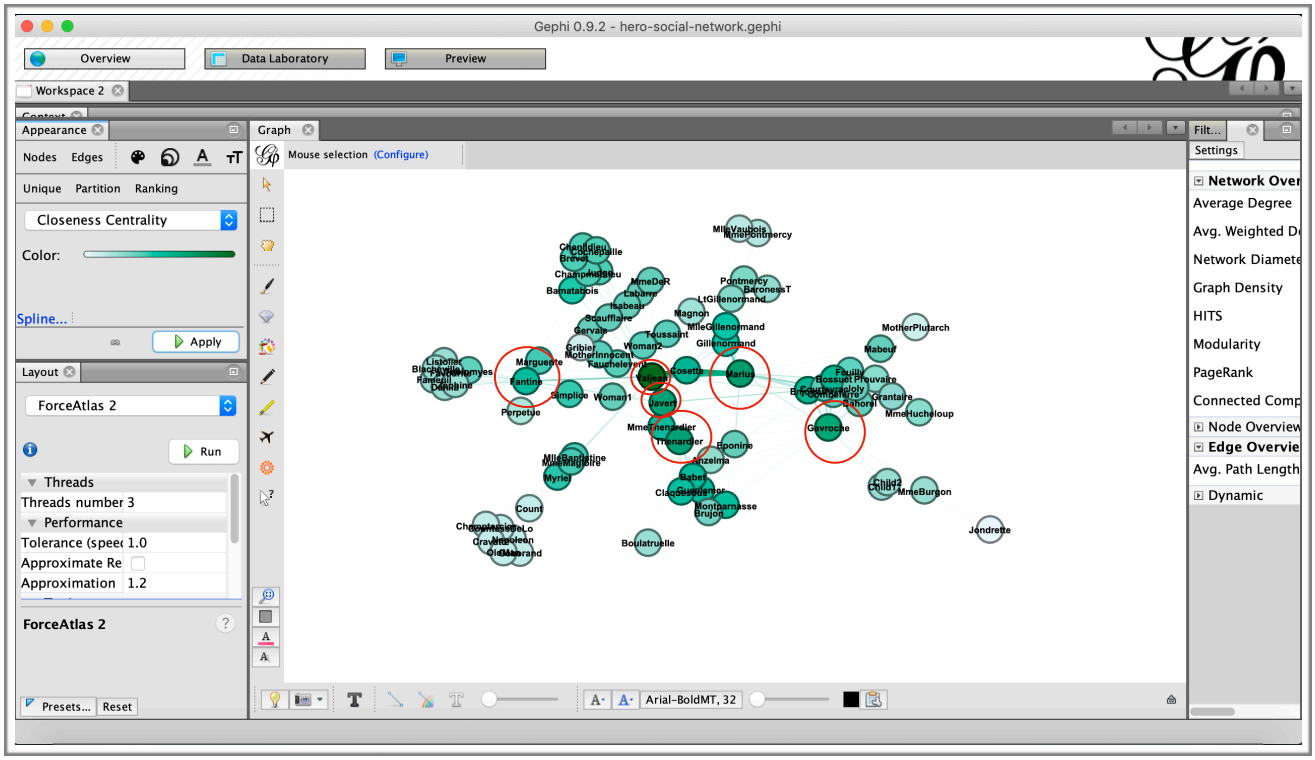
Shows how often the node appears on the shortest path between any other nodes.



We can see that Fantine node has the highest number of times acts as a bridge as bridge along the shortest path between two other nodes in the network and thats make it the one with the highest betweenness centrality.

3. Closeness Centrality:

Measure the centrality of a node



Based on colors in the figure we can see that Valjean is the main character of Les Misérables because the darker the color the more closeness the node. As will as Gavroche, Marius, Javert, Thenardier, and Fantine are clearly also central characters and without them maybe other nodes wouldn't be connected.

Conclusion

In the end, SNA is a useful tool for understanding the relationships in any network. The report started by the explaining what tool we preferred then an analysis done based on centralization of three cases which are : Degree Centrality , Betweenness Centrality and Closeness Centrality with details of each one.

Github

`https://github.com/RawanAlqahtani/CPIS483-E-Commerce.git`