Gephi Instruction 3

Now you should already have Gephi installed in your computer. Otherwise, please refer to our "Gephi Instruction 1" HERE.

Open Gephi and load the data set:

- go to the "File" tab at the top
- select "Open" in the dropdown
- find the directory where you have stored the data "Ring25.NET", and open it.

Using Gephi add a link
(for instance, "1-13" i.e. an undirected link between nodes 1 and 13):

- click the "Data Laboratory" tab at the top of the program
- click "Add edge" (on top of the current window "Data Table")
- click "undirected"
- choose "Source node" and "Target node" to be "1" and "13", respectively
  - since you are adding an undirected link, either "1" or "13" can be the Source node
- click "Ok"

Redo this until you have added all links you want.

Using Gephi delete a link
(for instance, "3-1" i.e. an undirected link between nodes 3 and 1):

- click the "Data Laboratory" tab at the top of the program
- click "Edges" (on top of the current window "Data Table")

- choose the edge you want to delete, and click “Delete”
  - since the network is undirected, only one of “1-3” and “3-1” will appear

Redo this until you have deleted all links you want to delete.

Using Gephi calculate Diameter of the network:

- under ”Network Overview”, find ”Network Diameter” and click ”Run”
- choose ”undirected”
- it will generate a new window from which you can find the Diameter, as well as other information about path length

Using Gephi calculate calculate Average Clustering coefficient:

- find the window ”Statistics” in your screen
- under ”Node Overview”, find ”Avg. Clustering Coefficient” and click ”Run”
- choose ”undirected”
- it will generate a new window where you can find the average clustering coefficient

You are encouraged to generate random network(s) with 25 nodes and similar average degree (4), then examine the diameter and average clustering coefficient there. Recall:

Using Gephi, generate random networks:

- go to the "File" tab at the top of your screen
- choose "Generate" and "Random Graph..."
- input "25" when asked "How many nodes"
- input the "wiring probability" you want
  - choose a wiring probability around $ave.degree/25$
  - note Gephi only generates directed network (unless you use other plugins), but you can treat it as undirected by ignoring the directions of the links;[1]

[1]By doing so, please also note that the average degree calculated by Gephi is approximately half of the average degree of interests, since Gephi define "average degree" as the average of average in- and out- degrees.