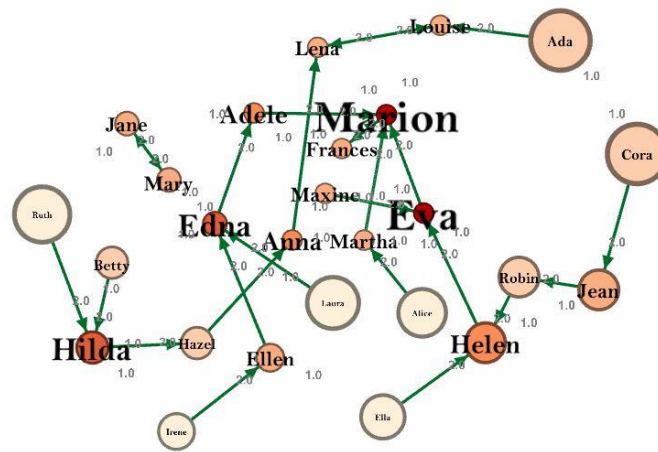


SOCIAL NETWORK ANALYSIS
GEPHI ASSIGNMENT
DINING TABLE DATASET

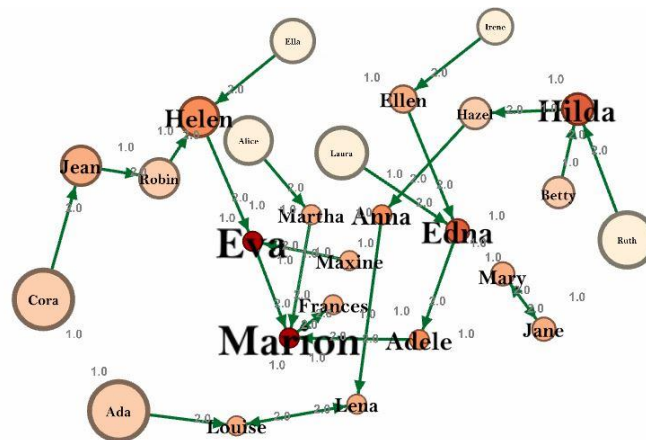
SYED MUZAMMIL AHMED

ERP: 25371

b) . Choose the layout algorithm under the layout tab and run it until the network has become visualized.



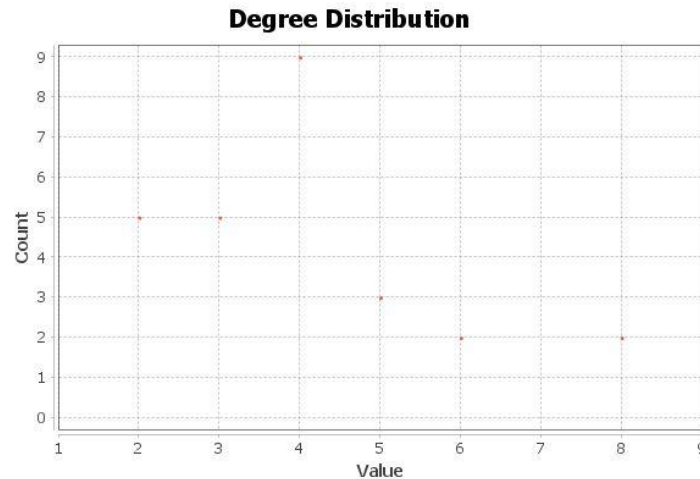
c) Show node labels and adjust their size. Show edge weight.



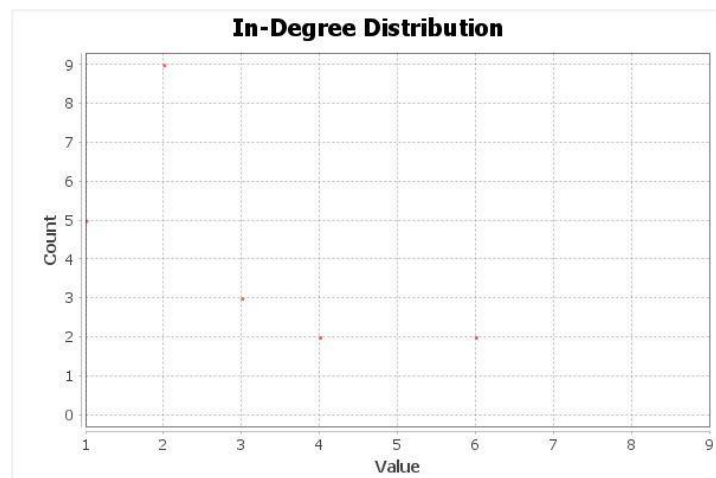
d) Consider answering the following using In-degrees in the Dining Table example

I- What is the average degree (as indegree or outdegree) and briefly explain why this is a logically correct value?

The average degree of Dining Table dataset is 2, which mean each node has around 2 degrees. Around 9 people has degree value of 4, and 2 people has around 8 degrees which is maximum degree value with respect to one node.



- ii- Indegree is the number of edges coming into the node. So according to the indegree distribution of Dining Table data, around 9 nodes have 2 indegrees, 3 nodes have 3 indegrees etc. around 2 people have 6 indegrees value which is highest.

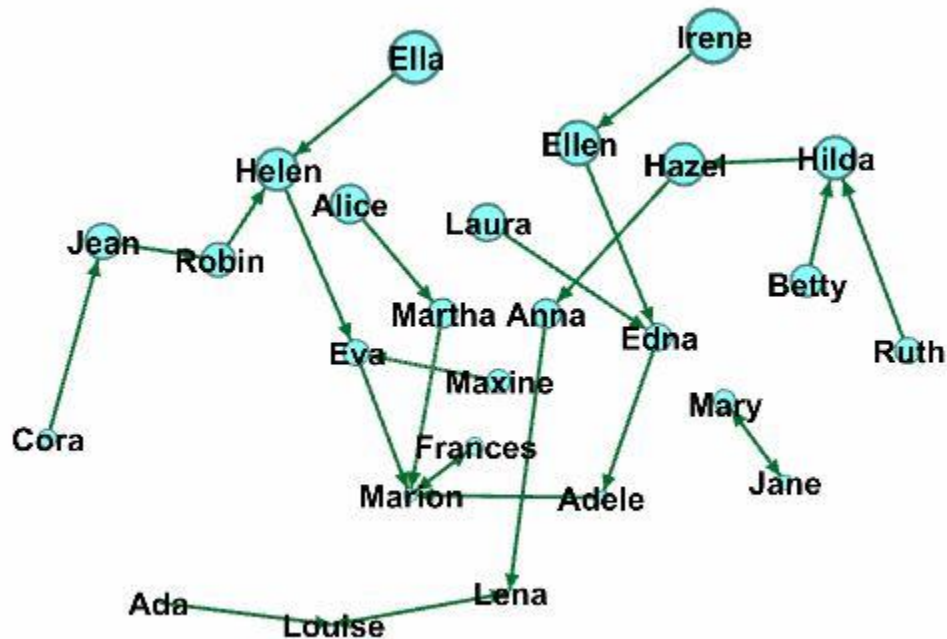


- iii- **What does the In-Degree value mean in the context of this network?**

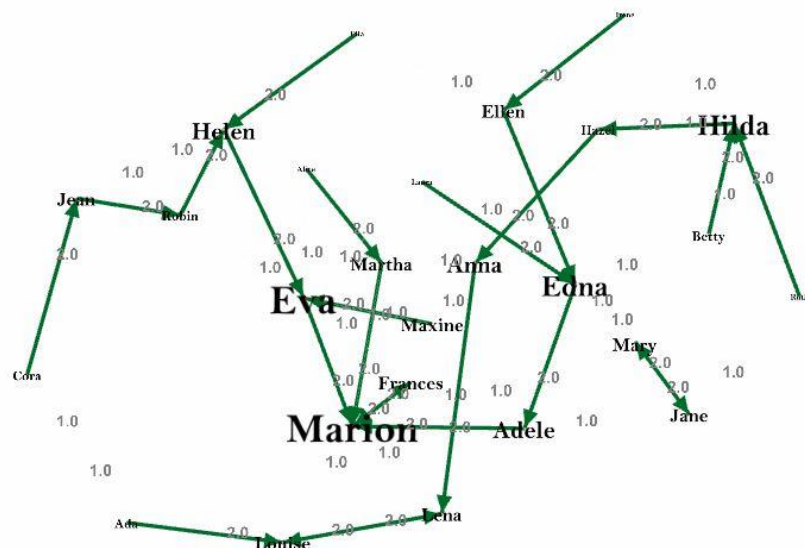
Indegree is the number of edges coming into the node. So, according to this network higher indegree means that girl is high in demand to be a partner of other girls mean many other girls want to make her dining partner and that girl is influential.

Who is the most isolated person in the group? Explain how you can define isolation using the degrees?

According to the graphs and degrees, Irene, Ella, Ruth, Laura, and Alice are the most isolated person in the graph because it has no in degree and isolated with everyone else.



e) Under the ‘Ranking’ tab, under ‘Nodes’, select In-Degree as input. Next the ‘Nodes’ tab you can select four ways to display the input in the network, which are by color, by size, by label color, and by label size. Select the size option. For the minimum size, we select 2 and for the maximum size, we choose 10. Then click ‘Apply’.



f. Find the following

- i- Run the 'Connected Components' option under the 'Statistics' tab. Find how many strongly connected components are there. Show it in visualization using node ranking on the strongly connected component. Understand the pattern component connection and give an idea of how information might flow. For example, if someone had some piece of gossip, how would this information spread?**

There is total 11 strongly connected component in this dataset graph, if we circulate information from these strongly connected component then information spread more quickly as if we circulate information using weak connected component. For example, if we initiate information from Marion who relates to all other members of graphs the information will move fast and to everyone, but if we initiate information from Ruth which is only connected to one other than information will spread slowly.

- ii- There is only one weakly connected component. Can you elaborate on the reason why there is only one?**

According to this data, whole graph is weakly connected component, because there are many nodes through which we can't circulate information.

- iii- Is that possible to identify important nodes that can play a very influential role in the network using the colors of the components? Elaborate on how to do that.**

If we rank our nodes based on degree and color with respect to their importance, then most important node which is one with higher numbers of degrees is colored as dark shade whereas node with low importance is colored as light shade.

So, most important girls who have higher number of degrees has their name with higher font and are colored as dark. Meanwhile, girls with low importance and influence have they're in small font and light shaded color.

