**Project Ideas**

1. **Use the UCINET IV Datasets (public)**
   1. Choose one of the datasets available
      1. Why did you choose this dataset?
      2. What are the characteristics of the dataset?
      3. Available at:

<http://vlado.fmf.uni-lj.si/pub/networks/data/ucinet/ucidata.htm>

* 1. Create a Gephi network with the dataset
     1. What are your nodes?
        1. Why did you select these nodes?
     2. What are your links?
        1. Directed or undirected, why?
        2. Do they have any weight, why?
  2. Analyze the different components of this social networks
     1. Centrality
     2. Average Path Length
     3. Longest paths
     4. Why did you select these metrics?
  3. Format your graph (e.g., change size and the color of the nodes)
     1. Why is this format useful?
     2. What are you highlighting?
  4. What are the most important factors?
     1. What node has the greatest centrality? What does this mean?

Closeness: measures access efficiency and how connected one node is to the other nodes in the network, so in this case, how connected to other inmates an inmate is (inmate 40 highest)

Betweenness: measures others’ dependence on a single node, or in this case, which inmate has the most friends (inmate 30 highest)

* + 1. Are there any important bridges in the network?

Edges connecting those with high degree: for example, 52 to 37 has a bridge that connects distant neighborhoods

* + 1. Etc
       1. Highest degree (node 8)
       2. Density 0.041
       3. Ave weighted degree 2.716
       4. Clustering 0.218
       5. Average Path Length 4.631261770244821
  1. Compare two similar networks in terms of behaviors in these datasets (e.g., Fraternities)
     1. Choose another dataset and create a network graph with Gephi
     2. What are the similarities and differences with the previous network?

Similarities: significant bridges between neighborhoods that connect different groups

Differences: clear outliers formed their own groups completely separate from the larger network, presence of clusters that have bridges to other neighborhoods rather than a more interconnected network seen in the prison data

* + 1. Other points to highlight

Highest degree (nodes 407, 272, 205, 883, 691, 117)

Are there any important bridges in the network?

* + 1. Etc
       1. Density 0.037
       2. Ave weighted degree 4.985
       3. Clustering 0.474
       4. Average Path Length 4.5614900953282405
  1. What are your final results and conclusions about your created network?