Social Network Analysis Gephi Visualization Description

After viewing the Lost Circles visualization of my Facebook network, it was surprising to see that the map had accurately and clearly grouped my friends into small clusters that each represent a number of defining features that each friend shares with one another within the cluster. The graph was undirected in nature and included 537 nodes and 10022 edges. Once the graph was opened on Gephi, it was still too unorganized to productively analyze the network's clusters. As such, I had applied the Yifan Hu Proportional layout to the graph which made it significantly easier to analyze. Subsequently, I ran network diameter and modularity statistics on the graph and received 6 and 0.542 as their respective results. In order to further detail the graph visualization, I sized the nodes based on Betweenness Centrality and color-coded them by modularity class/cluster. Finally, I resized the entire network's graph to further spread the clusters apart from each other, labeled the nodes based on their names of my Facebook friends, and filtered the graph by a degree range of 12 - 209.

As a result, it was relatively easy to interpret that the clusters represented four different online communities that I was a member of at some point in time. For example, in Figure 4, the first huge green cluster represented the network of friends I had during my middle school years while the second, magenta cluster represented the network of friends I formed during my high school years. Generally, these two clusters would include a greater level of intersection for most nodes, however, since I changed school districts during my freshman year, the intersection of people between the 2 clusters was limited. In addition, the people that were central to the clusters came as a bit of a surprise to myself since I had largely thought of these individuals as acquaintances rather than close friends. However, the network displayed their ties to the cluster to have been central and as such, similar to mine and broad in range. Some major actors, as observed in Figure 5, consisted of high school friends such as Disha Lalwani that I had in multiple classes and college friends such as Daniela Gomes that I knew since freshman year.

In terms of how closely connected the clusters are, I do believe that there is a confounding factor of having moved to the US from the UAE that explains the large gaps between the different clusters and hence, lack of intersection amongst friends. Nonetheless, I found my network to have been dense in the way it represents the communities I had been actively involved in. I did find this visualization unsettling to a certain extent since I had not previously known how accurately network analysis could assess my groups of online friends and use these assessments to form clusters that identify my communities. Finally, I was also able to observe network behaviors learned about in class such as critical nodes, which were the nodes with the greatest degree of betweenness centrality, and the network's emergent complexity based on how it developed over the years as I changed schools and moved to a new country and engaged with a different community.

Gephi Network Analysis Process
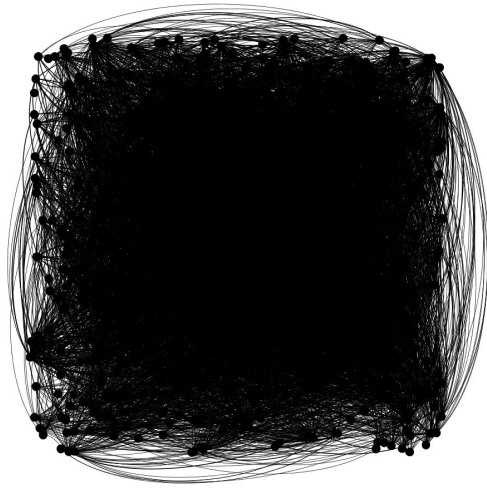
Original Lost Circles Graph Opened on Gephi

Figure 1

1. Yifan Hu Proportional Layout Applied to Graph
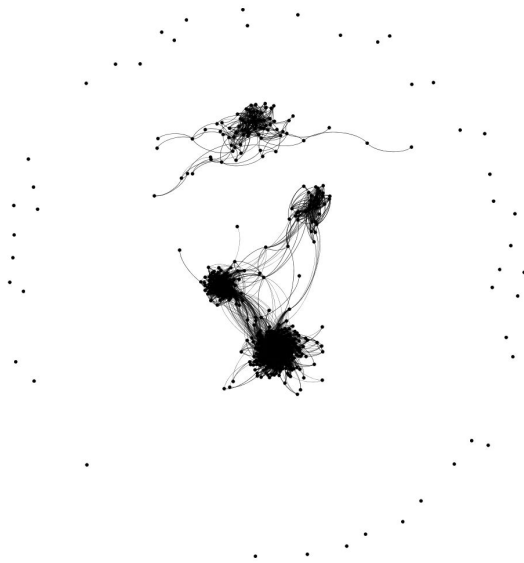

Figure 2

2. Nodes Sized by Betweenness Centrality & Color Coded by Modularity Class
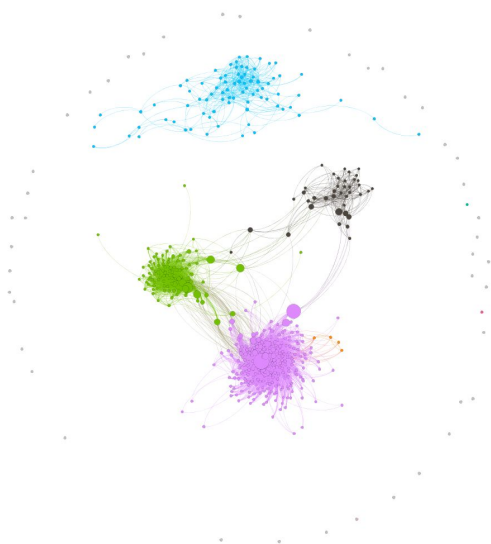
Figure 3

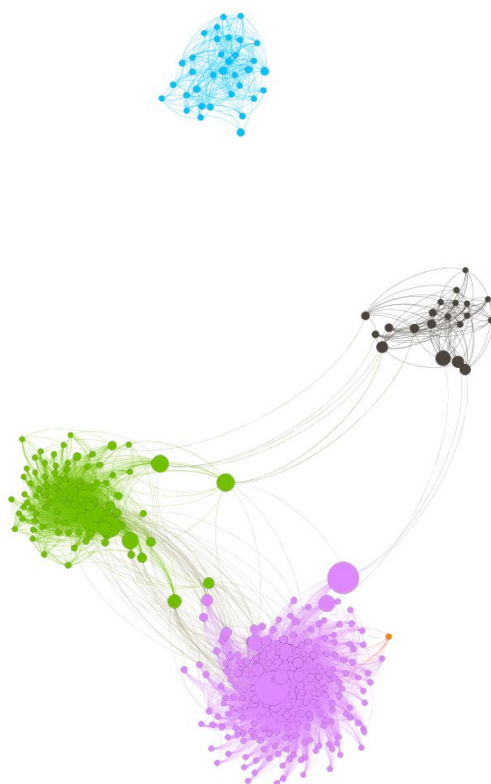3. Network Graph Filtered to a Degree Range of 12 - 209

Figure 4

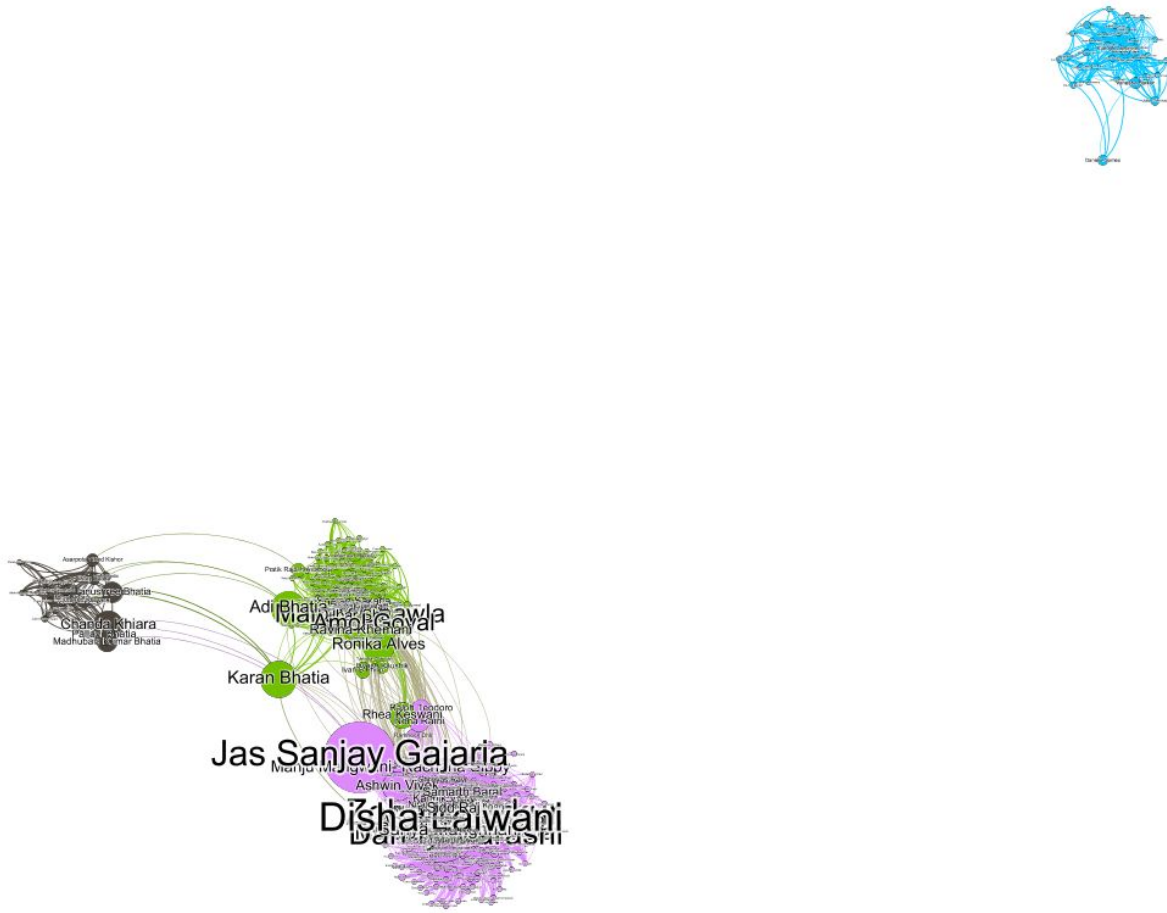4. Final Graph including Node Labels and Increased Max Size of Node to 80

Figure 5