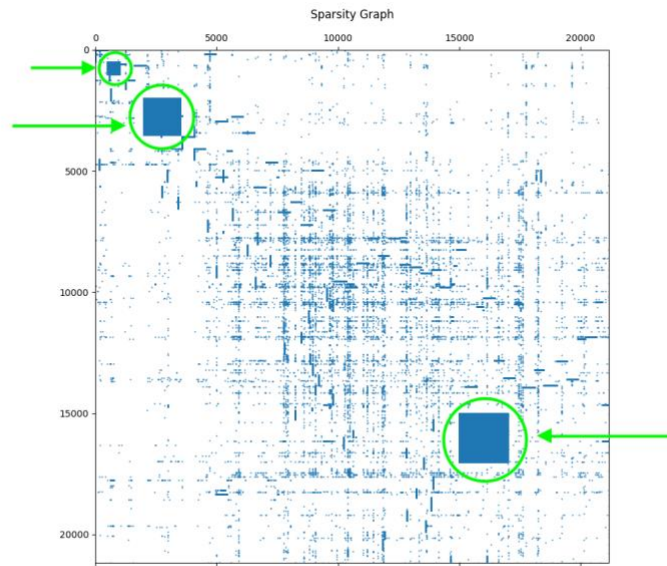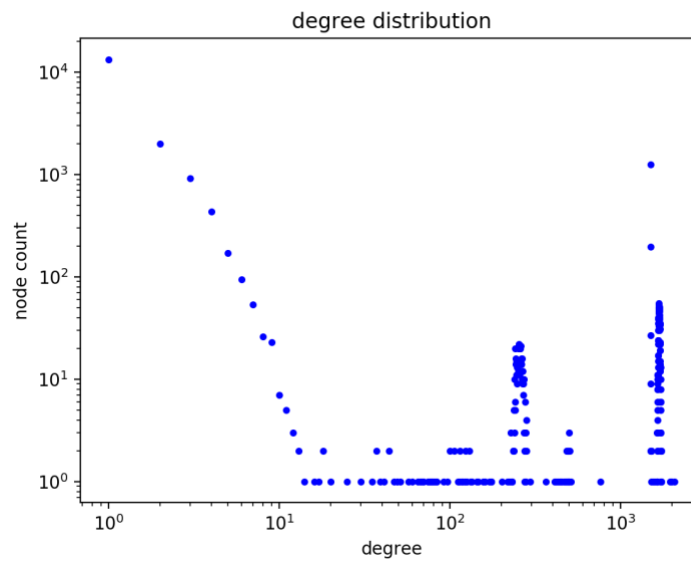Paul Rodriguez
SID: 861152748

CS235 Assignment Report
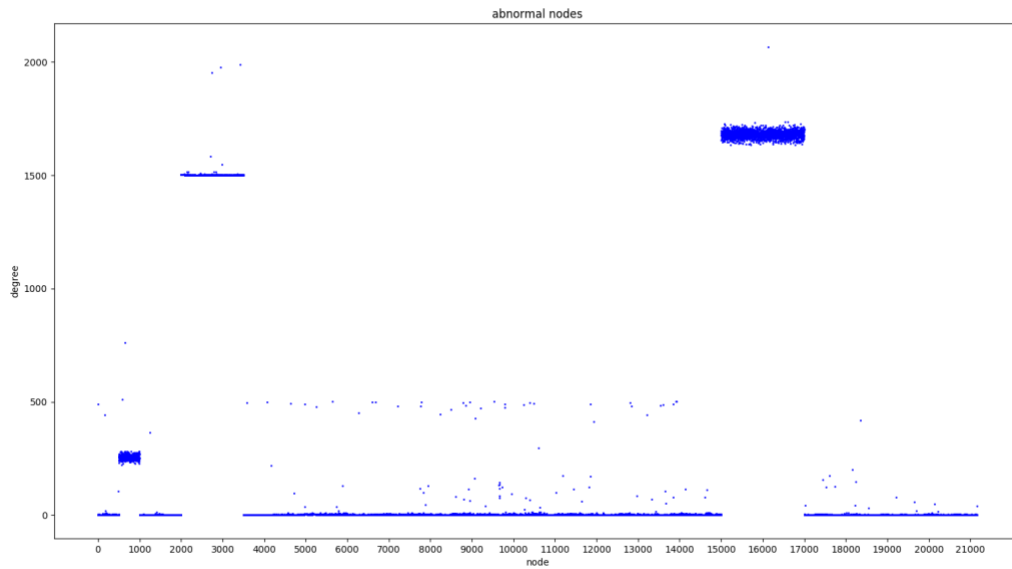
Question 1

Question 2

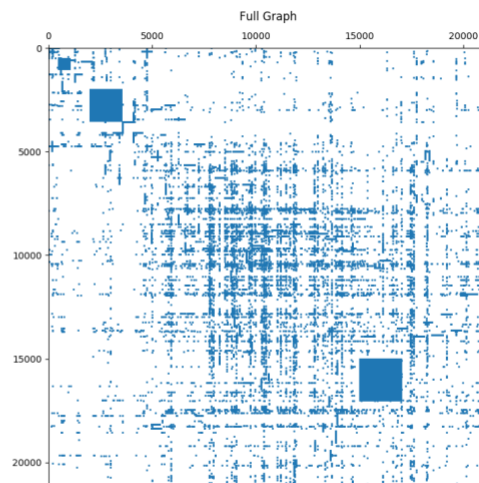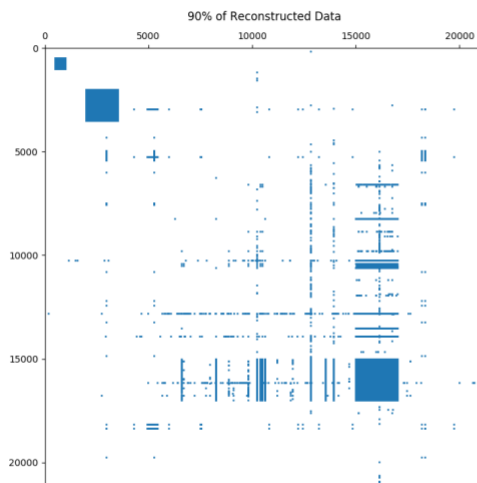
3. There are clear differences between this graph and the clean graph. This graph has an abundance of nodes with high degrees.
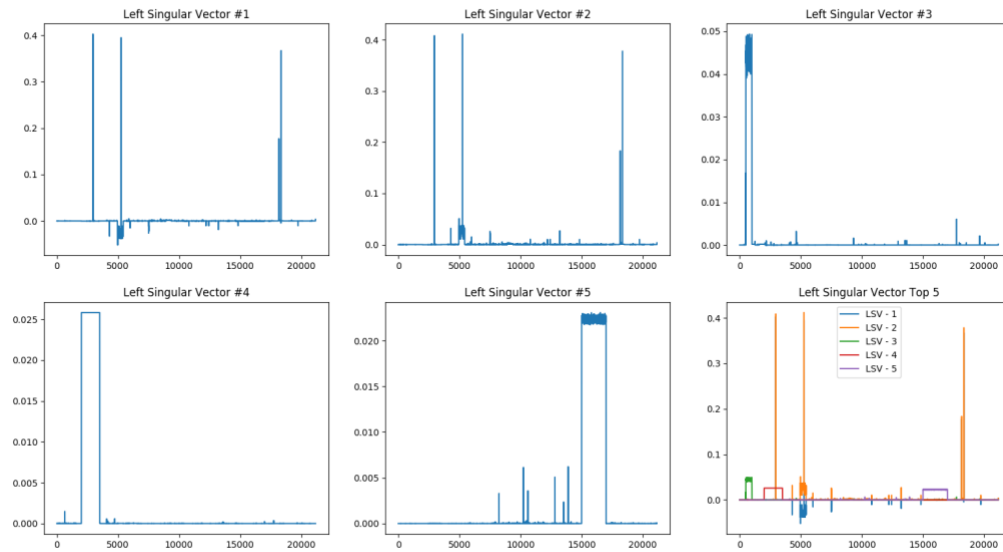
abnormal nodes

4. a. Based on the degree distribution, we have 3 abnormal blocks illustrated in the graph above. We plot the node with its respective degree and get a graph that compares all the nodes and their degrees.

   b. Nodes in the approximate range 750-1000 belong to block 1, nodes in the approximate range 2000-3400 belong to block 2, and nodes in the approximate range 15000-17000 belong to block 3.

Question 3

2. a. The Rank for which 90% of the original data is reconstructed correctly is 80. The sparsity graph precision is 0.1 meaning that any values less than this value will not be plotted.

b. The first 5 graphs (right-to-left, top-to-bottom) are the graphs corresponding to the top 5 left singular vectors graphed individually and the bottom right-hand graph is all of the left singular vectors graphed together.

c. The abnormal blocks found in our graph are the big spikes in the last colorful graph.

d. The first 5 graphs (right-to-left, top-to-bottom) are the graphs corresponding to the top 5 matrices graphed individually and the bottom right-hand graph is all of the matrices graphed together.