Cytoscape:

Cytoscape is the Networking Software that we utilized to construct our mapping. Cytoscape is primarily used by biologists for bioinformatics in constructing diagrams. However, Cytoscape served our initial purpose of displaying the graphical representation of our Erdös network. The base application of Cytoscape would allow us to construct a graphical representation of our Erdös Network. Through this initial few trials we obtained a visually pleasing Network but not enough information on the network itself. After researching the software further we discovered an application called Centiscape. This application allowed us to obtain the various Centrality factors (i.e. Node Strength, Eccentricity, and Betweeness/Closeness) for our network. From this, we obtained crucial information for the implementation of our algorithm on the Erdös Network.

Cytoscape appears to be a well-maintained site, and therefore reliable in its operation. The standards of centrality measures are well-defined, and we are given an idea of how the numerical analysis functions. We did not find much information on how Cytoscape performs their computations. However, the programmers do give a basic numerical algorithm for calculating each individual Centrality measure. Overall, the graphics software, as well as network analysis, made this software crucial to the implementation and formation of our model. Without some sort of software akin to this, the actual construction of the network seems a daunting task.

Difficulty in creating sub-network:

One part of the prompt was to analyze a section of our Erdös network to create an algorithm to apply to the larger set of Erdös’ coauthors. Our first attempt at obtaining an effective sub-network was to propagate a node weight through the network. After comparing several time frames for network propagation we chose one Author as the initial node for which to find co-authors. The mistake we made was starting with the co-authorship network and then trying to find cross-referenced research journals. Since the node densities of certain areas of the layout were relatively high we believed that choosing a subset of tone such node cluster would yield a closed subset of co-authors. However, this method proved ineffective as the total number of short paths through the nodes in question did not determine the similarity of research between other coauthors. As such, we attempted to locate commonly cited research articles and interpolate authorship across a network of authors.

Database

If someone had longer than the competition permits, one would probably want to attempt creating a useable database of research articles. Since you can apply the algorithm to other networks your database information would vary. However, the overall utility of having a useable database would have been innumerable. This could lead to a possible computational solution towards the reference coauthors using numerical methods instead of brute force method of sifting through article bibliographies. This method leaves too much up to human error as one can become lost in the sheer number of journals that need to be searched in order to located authors within the Erdös network. . Not only would this give easier access to research articles, but it would cut down on human error and the amount of time needed to calculate certain parameters.