2019 SNA homework 2

Due May 1th

    a. With ZACHE data, (which is built in UCIENT, the Gephi file of the same data can be downloaded here)

       i. perform core/periphery analysis on ZACHE data. Does the network represent a core and periphery structure? Also represent the coreness and other centrality measures of each node with size and visualize the network using NetDraw

      ii. Run centrality analysis with Gephi and visualize the centrality measures by node size or color.

     iii. Run clustering coefficient analysis with Gephi and visually represent relationship between centrality and clustering coefficient measures, also represent the two measures visually, what does the visualization tell you?

Note: core/periphery can be applied to both binary and numerical data, you might want to first **unpack** the original ZAHCARY file into ZAHCE and ZACHC before conducting binary and value based coreness analysis.

    b. Compare keyword co-occurrence network resulted from publications by authors affiliated with the school of public health at National Taiwan University between the periods of 1972-2007 and 2008-2017.

       i. What are the most import research topics in each period? Is there a shift in the focus of research?

      ii. Again visually represent the relationship between centrality and clustering coefficient.

    c. Use the dataset you have collected from the first assignment and run the following analyses:

       i. Use Gephi to run centrality analysis and compare the results, visually, and through ranking, of various constructs of centrality (i.e. Closeness, Betweenness, Degree, Eigenvector centrality)

      ii. Do different centrality measures agree with each other? Why and why not?

     iii. Use UCINET to do core-periphery analysis on the same data, use both dichotomy and numerical and visually present them on NetDraw.

        iv. Try input the coreness data into the node attribute field of Gephi, and compare the coreness results with other four centrality measures.

        v. Run clustering coefficient analysis and determine the degree of clustering of your network data (How?)

d. [Use the Gold Melody Award annul best singer album music artist collaboration network](), answer the following question:

        i. How many components are there in the network?

        ii. Compare different centrality measures (Degree, Closeness, Betweenness, PageRank etc.) of nodes within the GIANT component, do they agree with each other, why and why not?

        iii. Does the giant component fit the small world model?

        iv. Does the clustering coefficient appear to high or low? (again, how are you going about establishing this)