NETWORK CENTRALITY

**Review**:

For this activity, you may find it helpful to review the basic concepts of graph theory:

<https://en.wikipedia.org/wiki/Graph_theory>

**Video assignment**:

Watch the following video: <https://www.youtube.com/watch?v=iiVeQkIELyc>

Concepts to learn from the video

1. The notion of network centrality
2. The four basic measures of network centrality
   1. degree centrality
   2. betweenness centrality
   3. closeness centrality
   4. eigenvector centrality
3. How to calculate degree centrality

**Quiz**

Complete the blackboard quiz about these concepts before midnight on Friday April 3.

Software Design & Implementation Activity

Design and develop software to calculate the degree centrality for the Hist1 region.

In this activity, the normalized linkage table is interpreted as a representation of a network by applying the following rules:

* The network contains a vertex for each window in the Hist1 region.
* The network contains an edge <**A**,**B**> when **L(A,B)** > **L-avg**, where:
  + **L(A,B)** = the normalized linkage of windows **A** and **B**
  + **L-avg** = the average value in the normalized linkage table for the Hist1 region.

**PART1**: due on Monday, April 6 before midnight (email to welch@ohio.edu)

Submit a design of the software:

* Page 1: Design diagram
* Page 2: Explanation of the design diagram (1-2 paragraphs)

**PART2**: due on Friday, April 10 before midnight (email to welch@ohio.edu)

Submit a demo of the software:

* Page 1: Screenshot of the core code that calculates degree centrality for Hist1 region.
* Page 2: Screenshot of the output produced by your program, including the following:
  + - Average, min and max degree centrality
    - A ranked list of windows and their centrality values (ascending order)

**NOTE**: I may respond to your email submissions with questions about your design, code, results, and/or interpretation. Please respond promptly to my questions.