CIS 310 Analysis of Networks
Project 1

Objectives

- use the skills and software learned during the semester to analyze a new network

- reason about the analysis and additional research to reach defensible conclusions

Overview

In this project, you are given a network to work with. The data comes from a 1995 Book by historian David Hacket Fischer called Paul Revere's Ride. In it, the author describes the events that led up to the famous ride and makes an argument for the central position of Revere. In 2013, a sociology professor at Duke University, wrote an excellent analysis of the data collected by Fischer, amusingly written by an intelligence agent from the revolutionary time frame. He made the data available on his blog.

You are to do analysis on the data using Netzer and whatever other tools you wish to use (spreadsheet, calculator, etc.). Under the process below, you are given some recommended tips for doing the analysis. You are free to using any materials for the research but I would advise you to refrain from looking anything up until you've done the analysis – it may be interesting to make the discoveries using the analysis first.

I encourage you to work in a team of two (maximum) but let me know who you are working with.
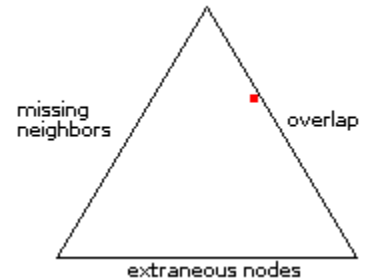
Resources

- meetings.txt (on blackboard) is an 8 column file, listing the patriots and the organizations or events they were involved in. The first column is the name and the other 7 columns are the organizations/events they were (1) or were not (0) involved in.

- revolutionNet1.txt (on blackboard) is a full network of all 254 patriots. It was formed in the normal way of going from a 2-mode to 1-mode network. Two patriots are linked if they have shared 1 or more events/organizations. This is given to you for your information but not to be used for the main part of the analysis. You might want to go back to this network later to look up some betweenness scores or other statistics after you have done the suggested analysis.

- revolutionNet2.txt (on blackboard) is a smaller network of 40 patriots. This one was formed in the same way as revolutionNet1 except the threshold was 2; patriots were linked if they shared 2 or more events/organizations. This is the main file for doing the analysis. You can download it to your computer and open it in the normal way (file/open) in Netzer.

- Kieran Healy's blog: https://kieranhealy.org/blog/archives/2013/06/09/using-metadata-to-find-paul-revere/

- any other source for looking up information about revolutionary war participants.

Process

Download the revolutionNet2 and load it into Netzer. You will notice that nodes are randomly placed. Make sense of the data using the following suggested analysis.

- form communities. I would recommend detecting 6 communities selecting a spot on the triangle like the image to the right. Once you find the communities you can rearrange the nodes so that they are grouped that way – it makes the analysis easier. To start rearranging you can choose the layout for Fructermann or commCircle.

- using the node-role chart in the lower left of the Netzer window identify and write down the notable participants (ambassadors and big fish). You might find a spreadsheet convenient for this as you should also collect the statistics (degree, closeness, betweenness, clustering coefficient, rawComm and nbr of communities) for each of these men.
- find the 3 most influential nodes using the greedy method. You can start with 1000 iterations but you might get more consistent results using 10,000. It will take longer to run using 10,000. You should do this a few times to get a feel for which patriots it chooses. Where there any surprises? Can you explain them?
- use some on-line sources to find out more about the patriots. How does the analysis align with the historical descriptions?

Report

As part of the project you are required to turn in a two page paper (maximum). You must include an image of the network as you created in Netzer. In the paper, you are to discuss the important figures. Back up your claims with references to the analysis done. Single out different patriots as being the most central, the most trustworthy and the best glue (holds the network together) or any other category you decide on. You should also discuss anything you might have learned about American history from this project.

Details

- due date   November 12 /2018

- total points   100