Local Networks Assignment

Today's Assignment;

1. Compute Measures of Local Network Composition
2. Plot and Interpret Results

For this assignment we are using School 23 from the National Longitudinal Study of Adolescent Health Data. The nodes are students and the ties are friendships. Before starting the assignment, you should evaluate whether the network is directed and/or connected. And determine the number of edges and nodes in the network. For the purposes of this assignment, I recommend working on the giant connected component in the event that there are isolates.

1. Compute Local Network Composition Measures

For "School 23" from the National Longitudinal Study of Adolescent Health Data, for each individual in the school, compute the following:

- network size (i.e., degree - separately for in, out & total)
- ego-network density
- transitivity
- Burt's constraint

2. Evaluate Local Variation in the Graph

Calculate the mixing matrix, the odds of within group ties, and assortativity for sex and grade.

-**Bonus:** Build a random network and compare scores for sex.

3. Graph and Interpret your results

-Plot the degree distribution
-**Bonus:** Plot the relationship between network size (total degree) and each of the other measures that you created (density, transitivity, constraint)
-Plot the network highlighting gender and transitivity

Interpret the results: What have you learned about School 23 by working through the local networks that comprise it?