Computer Assignment 1
Complex Networks 2

Instructions

Please read these instructions carefully before proceeding to solve the problems.

1. All the files with extension *.dat* in this directory are the data files. Each such file contains the network data of exactly one network, and the name of the network is same as the filename without *.dat* extension

2. All datasets are given in the form of list of edges in the network. Thus, each line in a data file represents one network edge: indices of vertices at the two ends of the edge separated by comma. If you see only a single entry on any line, that vertex is isolated.

3. Each edge in the network appears exactly once in each dataset. For undirected networks, the order of the vertex indices doesn't matter, and so the edge (i, j) is saved such that $i < j$. For directed networks, the edge (i, j) means that the edge points from j to i i.e. from the second entry to the first entry on each line.

Problems

1. For the undirected networks *karate, lesmis, netscience* and *dolphins*, plot the compute and plot the degree histograms.

2. For the directed networks *celegansneural* and *pgp-strong-2009*, plot the in-degree and out-degree histograms separately.

3. For the undirected networks *karate, lesmis, netscience* and *dolphins*, compute the global and average clustering coefficients. Also plot the distribution of the local clustering coefficients in each case.