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Due on 2016-08-01, 23:30 IST

Complex Network : Theory and Application
Week 1 Assignments

1. Model the following friendship relationship using undirected graph and answer the following Sansa and Tommen are friends. Sansa is also friends with Jack and Melisandre. Tommen, Jack and Jon are all friends of each other.

   a) Draw the graph and write the adjacency matrix

   b) Compute the local clustering coefficient of each of the vertices and global clustering coefficient of the graph.

2. Model the following hating relationship using undirected graphs and answer the following James Gordon and Bruce Wayne hate Edward Nygma. Edward hates Barbara Keane. Barbara Keane hates Theo Galavan. Theo Galavan hates Oswald Cobblepot. Oswald, Carmine Falcone and Fish Mooney hate each other

   a) Draw the graph and write its adjacency matrix

   b) Calculate Degree centrality, Closeness centrality and Betweenness Centrality of each of the nodes

3. Assume six hypothetical companies – Info-ramma (I), Knowledge Inc. (K), Datacracker (D) , Air Titan (A), FoodMart (F), Notitia (N) . They lend money from each other. If a company A lends money from company B, there will be a directed edge from A to B.

   Now, I lends money from D and K. K lends money from F and D. F lends money from D. D lends money from A. A lends money from I. N lends money from A

   Who has the largest and smallest pagerank on this directed graph and why?

4. Download the "political blogs" dataset from

   http://www-personal.umich.edu/~mejn/netdata/

   Compute pagerank on the graph using pagerank function in NetworkX package (python) with the damping factor of 0.8 and 0.9

Your Submission:

Due Date Exceeded.
As per our records you have not submitted this assignment.