

COSC 2671 Social Media and Network Analytics

Tute 11

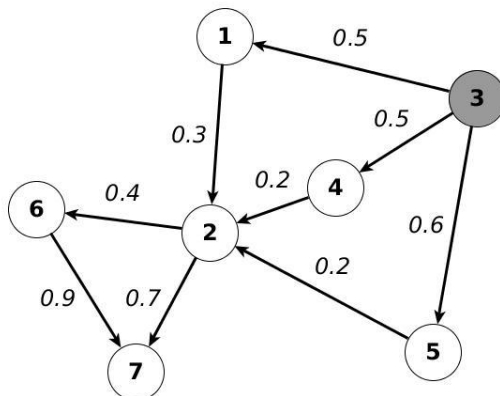
Homophily & Influence

Learning outcomes:

- Revise homophily and influence

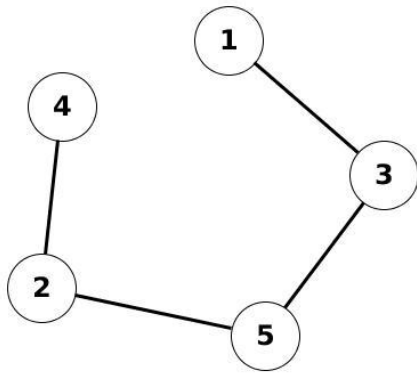
Tutorial Questions

1. What is the assortativity? Write down the assortativity measure equation (the un-normalised one) and explain each component of the equation.
2. Perform linear threshold model on the following graph. The numbers on the edges are the weights.



Write down the order the activated nodes become active, with node 3 been initially activated (active nodes are in grey). The activation threshold for nodes 1,2,4,5,6,7 are: 0.4, 0.4, 0.3, 0.7, 0.5, 0.6

3. Consider the following graph. Compute the homophily model on it.



The following is the thresholds for each node (in the order of node 1 to 5):
0.2, 0.6, 0.8, 0.4, 0.5

The following table are the pairwise similarities between each pair of nodes (without edges):

Source Node	Target Node	Similarity
1	5	0.7
1	2	0.1
1	4	0.3
2	3	0.5
3	4	0.9
4	5	0.2

The sequence the nodes should be considered when adding edges is 1,2,3,4,5, and the order that the potential neighbours are considered is in ascending order, e.g., if node 1 can be connected to nodes 4 and 5, then node 4 then 5 should be checked.

For the homophily model, write down the edges that are created.

4. Discuss some possible ways to determine if homophily and/or influence factors lead to assortativity in a network?