

Assignment 1

1. Generate the network (with 12 nodes) with the given edge set, complete the corresponding analysis and visualization tasks.

Edge set:

1 and 2, 1 and 3, 1 and 4, 1 and 8, 1 and 10, 1 and 11, 1 and 12;
2 and 3, 2 and 4, 2 and 5, 2 and 6;
3 and 5, 3 and 6;
4 and 7, 4 and 9, 4 and 10, 4 and 12;
5 and 9, 5 and 11;
6 and 12;
7 and 11;
8 and 12;
9 and 10;
11 and 12;

- 1) Report the adjacency matrix, and plot this network with labels.
 - 2) Find the node(s) with maximum betweenness, what's the maximum betweenness value?
2. Import the friendship network in a class represented by an adjacency matrix "class" into R:
 - 1) What is the highest page rank value among nodes?
 - 2) What is the size of the largest component in this network?
 - 3) What is the global clustering coefficient and assortivity of outdegree in this network?