CMSC5719 Introduction to Social Computing

Exercise 1

Figure 1 is an undirected graph with 6 nodes and 8 links.

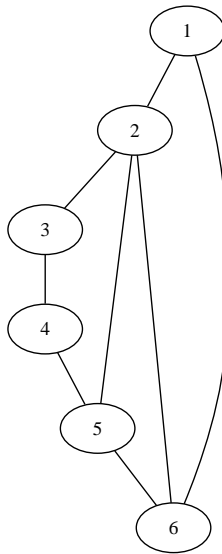Figure 1: A graph with 6 nodes and 8 links

Questions:

(1) What is the adjacency matrix of the graph?

(2) What are the eccentricities of node v_1 and v_2?

(3) What is the radius, diameter, density, and average distance of the graph?

(4) What are the degree centralities of node v_2 and v_5?

(5) What is the group degree centralization and group between centrality of the graph?

(6) What is the closeness centrality and betweenness centrality of node v_2?

(7) Find a 3-clique in the graph.

(8) Find a 2-clan which contains at least 4 nodes in the graph.

(9) Find a 2-club which contains at least 4 nodes in the graph.