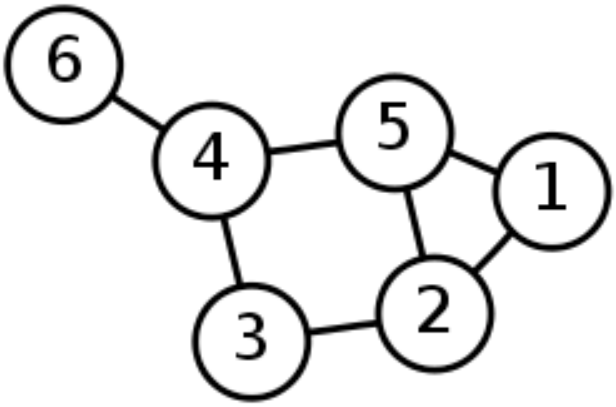
CST 370
Homework (Graphs)

1. Consider the graph shown below.



Represent the graph by

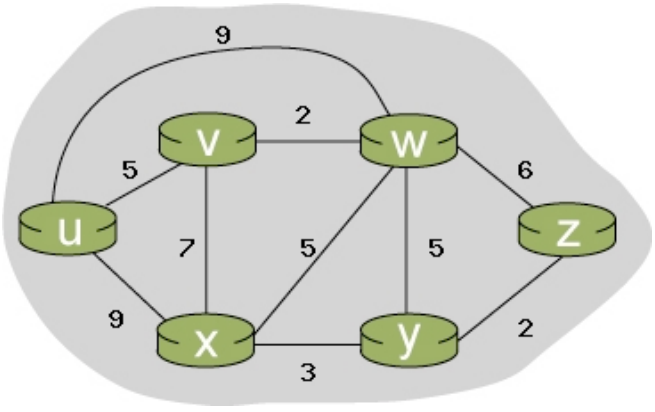
a) an adjacency matrix

b) an edge list

2. Consider the adjacency matrix given below. Draw the graph based on the adjacency matrix.

$$M = \begin{bmatrix} 0 & 1 & 1 & 0 & 1 & 1 & 1 \\ 1 & 0 & 0 & 0 & 1 & 0 & 1 \\ 0 & 0 & 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 1 & 0 & 1 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

3. Consider the graph shown below.



Determine the shortest paths from

a) U to all other nodes in the network using Dijkstra's algorithm. Clearly show all the steps of the algorithm.

a) V to all other nodes in the network using Dijkstra's algorithm. Clearly show all the steps of the algorithm.