National Institute of Technology Calicut
Department of Computer Science and Engineering

CS3093D: Networks Laboratory
Assignment - 5

Implement the following algorithms in C language.

1. Distance Vector Routing
2. Link State Routing

Hint: Use Bellman-Ford for DVR and Dijkstra's algorithm for LSR.

Input format:

Two integers *n* and *m*, where *n* denotes the number of nodes and *m* denotes the total number of links, followed by *m* lines denoting source, destination, and cost respectively of each link.

Output format:

1. For DVR, display the final routing table at **all** nodes in the format {destination, next_hop, cost}
2. For LSR, your program should print out the shortest path to all network nodes from **all** node with the complete path and the total cost.

Sample Input:

```
4 5
1 2 2
2 3 3
3 4 11
4 1 1
2 4 7
```

Sample Output:

For DVR,

Routing table at node 1 *(similarly, display for all nodes)*

1	1	0
2	2	2
3	2	5
4	4	1

For LSR, at node 1 *(Path to all nodes from Node 1, similarly, display for all nodes)*

1 -> 1	0
1 -> 2	2
1 -> 2 -> 3	5
1 -> 4	1