

Department of Computer Science & Engineering

University Of Dhaka
CSE-3111



Submitted by:
Nowrin Hossain -39

Submitted to:
Dr. Upoma Kabir
Proffessor,CSEDU

Date of submission:
30.04.2018

Name of Experiment: Distance Vector routing
protocol

Problem Description :

Here I have been given a problem about implementing distance vector routing algorithm. In this problem there is a networking. In this network there are some nodes which are connected to each other. I have to count minimum cost path , if I want to send a messages from one node to another node in the network.

Platform:

I have used JAVA as programming platform.

Process:

In Distance Vector protocol the node has only its adjacent nodes information. It doesn't know about the whole network. Thats why its gain minimum cost to other nodes by getting information from it's adjacent nodes.

For the implementation of this protocol I have used "bellmanform" algorithm to count minimum cost in case of sending a messages from current node to any other node in the network. The vector which contain the cost from current node to any other node is the distance vector. After getting the distance vector

I had sent that vector to all the adjacent nodes of current vector.

I also had to receiving distance vectors from adjacent nodes of current node and had to update matrix which keep tracks of minimum cost of all the nodes from all other nodes.

Program Design:

As we are said to use UDP datagram to send distance vectors, I have created udp socket with given port number.

I have used `bellmanford()` function in the code to get distance vector of current node. Used thread `sendDataPacket` to send distance vector to all the adjacent nodes of current node and `receiveDataPacket` to receive messages. After receiving data packet in second thread I used it `updateMatrix()` function to update distance vector of all the adjacent nodes .

After several updates of the matrix when I found that all the adjacent nodes got stable then I terminated the program and printed minimum cost from current node to all other nodes in the network in `printFunction()` method.

Some main component of the program:

- Used a 2D matrix called **node_matrix** to keep the costs.

- Used **bellmanford()** funtion to get current node distance vector.

- Send current Node row from the `node_matrix` as distance vector to all other nodes throught **sendDataPacket** thread

- Receive distance vectors from all other nodes through `receiveDataPacket` thread.

- Updated matrix using `uptadeMatrix()` function.

- Then checked if all the nodes got stable by not updating them for a specific time. I have done this using `check_stable()`

If the nodes get stable then I printed the minimum cost to all the nodes from current node.

That's all I have done in this assignment.