

ITCS 6166/8166 - Computer Communications and Networks

Project 2 - Distance Vector Routing Algorithms and Simulation

Team members:

Nikhil Bhirud (800889542)

Vijay Shushmanth Pothi Reddy (800935317)

Below is the output of the executed code.

Each entity is colour coded with a specific colour as below.

Steps to execute:

1. Copy the src folder in the zip file and extract it to a local path.
2. Open command prompt in that folder and compile the file Project.java using below command.
javac -Xlint Project.java
3. Run the file Project.java using below command.
java Project
4. It will prompt you for values of trace level (0 to 2), will the link change (0 or 1) and random seed (1 to 4). Input the appropriate values.
5. The output of the executed code will be displayed as a HTML file on your browser.
The output HTML file will be saved in C:\CCN directory.

Execution:

Compiling 1 source file to C:\Users\\$ VIJAY \$\Documents\NetBeansProjects\New Folder\CCN_Proj2\build\classes

compile:

run:

Network Simulator v1.0

Enter trace level (>= 0): [0] 0

Will the link change (1 = Yes, 0 = No): [0] 1

Enter random seed: [random] 1

BUILD SUCCESSFUL (total time: 7 seconds)

Output:

Entity0 is called at t = 21:57:21:872

Entity1 is called at t = 21:57:21:932

Entity2 is called at t = 21:57:21:942

Entity3 is called at t = 21:57:21:942

rtupdate0 is called at t= 21:57:21:872

node 0 is receiving packet from node 2

Node 0's distance table updated.

ITCS 6166/8166 - Computer Communications and Networks

	via		
D 0	1	2	3
1	1	4	999
2	999	3	999
3	999	999	7

Node 0's distance table updated.

	via		
D 0	1	2	3
1	1	4	999
2	999	3	999
3	999	5	7

Due to vector change, Packet is being sent to node 1 from Node 0.

Due to vector change, Packet is being sent to node 2 from Node 0.

Due to vector change, Packet is being sent to node 3 from Node 0.

rtupdate3 is called at t= 21:57:21:942
 node 3 is receiving packet from node 0
 Node 3's distance table updated.

	via	
D 3	0	2
0	7	999
1	8	999

ITCS 6166/8166 - Computer Communications and Networks

2	999	2
---	-----	---

Node 3's distance table updated.

	via	
D 3	0	2
0	7	999
1	8	999
2	10	2

Due to vector change, Packet is being sent to node 0 from Node 3.
 Due to vector change, Packet is being sent to node 2 from Node 3.

rtupdate0 is called at t= 21:57:21:872
 node 0 is receiving packet from node 1
 Node 0's distance table updated.

	via		
D 0	1	2	3
1	1	4	999
2	2	3	999
3	999	5	7

Due to vector change, Packet is being sent to node 1 from Node 0.
 Due to vector change, Packet is being sent to node 2 from Node 0.
 Due to vector change, Packet is being sent to node 3 from Node 0.

rtupdate2 is called at t= 21:57:21:942
 node 2 is receiving packet from node 0
 Node 2's distance table updated.

ITCS 6166/8166 - Computer Communications and Networks

	via		
D 2	0	1	3
0	3	999	999
1	4	1	999
3	999	999	2

Node 2's distance table updated.

	via		
D 2	0	1	3
0	3	999	999
1	4	1	999
3	10	999	2

rtupdate3 is called at t= 21:57:21:942
 node 3 is receiving packet from node 0
 rtupdate1 is called at t= 21:57:21:932
 node 1 is receiving packet from node 0
 Node 1's distance table updated.

	via	
D 1	0	2
0	1	999
2	4	1
3	999	999

Node 1's distance table updated.

ITCS 6166/8166 - Computer Communications and Networks

	via	
D 1	0	2
0	1	999
2	4	1
3	8	999

Due to vector change, Packet is being sent to node 0 from Node 1.

Due to vector change, Packet is being sent to node 2 from Node 1.

rtupdate2 is called at t= 21:57:21:942

node 2 is receiving packet from node 0

Node 2's distance table updated.

	via		
D 2	0	1	3
0	3	999	999
1	4	1	999
3	8	999	2

rtupdate3 is called at t= 21:57:21:942

node 3 is receiving packet from node 0

Node 3's distance table updated.

	via	
D 3	0	2
0	7	999
1	8	999
2	9	2

ITCS 6166/8166 - Computer Communications and Networks

rtupdate2 is called at t= 21:57:21:942
 node 2 is receiving packet from node 3
 Node 2's distance table updated.

	via		
D 2	0	1	3
0	3	999	9
1	4	1	999
3	8	999	2

rtupdate3 is called at t= 21:57:21:942
 node 3 is receiving packet from node 2
 Node 3's distance table updated.

	via	
D 3	0	2
0	7	5
1	8	999
2	9	2

Node 3's distance table updated.

	via	
D 3	0	2
0	7	5
1	8	3
2	9	2

ITCS 6166/8166 - Computer Communications and Networks

Due to vector change, Packet is being sent to node 0 from Node 3.

Due to vector change, Packet is being sent to node 2 from Node 3.

rtupdate0 is called at t= 21:57:21:872

node 0 is receiving packet from node 3

Node 0's distance table updated.

	via		
D 0	1	2	3
1	1	4	999
2	2	3	9
3	999	5	7

rtupdate1 is called at t= 21:57:21:932

node 1 is receiving packet from node 2

Node 1's distance table updated.

	via	
D 1	0	2
0	1	4
2	4	1
3	8	999

Node 1's distance table updated.

	via	
D 1	0	2
0	1	4
2	4	1

ITCS 6166/8166 - Computer Communications and Networks

3	8	3
---	---	---

Due to vector change, Packet is being sent to node 0 from Node 1.

Due to vector change, Packet is being sent to node 2 from Node 1.

rtupdate2 is called at t= 21:57:21:942

node 2 is receiving packet from node 1

Node 2's distance table updated.

	via		
D 2	0	1	3
0	3	2	9
1	4	1	999
3	8	999	2

Due to vector change, Packet is being sent to node 0 from Node 2.

Due to vector change, Packet is being sent to node 1 from Node 2.

Due to vector change, Packet is being sent to node 3 from Node 2.

rtupdate2 is called at t= 21:57:21:942

node 2 is receiving packet from node 3

Node 2's distance table updated.

	via		
D 2	0	1	3
0	3	2	9
1	4	1	10
3	8	999	2

rtupdate2 is called at t= 21:57:21:942

node 2 is receiving packet from node 1

Node 2's distance table updated.

ITCS 6166/8166 - Computer Communications and Networks

	via		
D 2	0	1	3
0	3	2	9
1	4	1	10
3	8	9	2

rtupdate0 is called at t= 21:57:21:872
 node 0 is receiving packet from node 1
 Node 0's distance table updated.

	via		
D 0	1	2	3
1	1	4	999
2	2	3	9
3	9	5	7

rtupdate1 is called at t= 21:57:21:932
 node 1 is receiving packet from node 2
 Node 1's distance table updated.

	via	
D 1	0	2
0	1	3
2	4	1
3	8	3

rtupdate1 is called at t= 21:57:21:932
 node 1 is receiving packet from node 0
 Node 1's distance table updated.

ITCS 6166/8166 - Computer Communications and Networks

	via	
D	1	0 2
0	1	3
2	4	1
3	6	3

rtupdate0 is called at t= 21:57:21:872
 node 0 is receiving packet from node 1
 Node 0's distance table updated.

	via		
D	0	1	2 3
1	1	4	999
2	2	3	9
3	4	5	7

Due to vector change, Packet is being sent to node 1 from Node 0.

Due to vector change, Packet is being sent to node 2 from Node 0.

Due to vector change, Packet is being sent to node 3 from Node 0.

rtupdate3 is called at t= 21:57:21:942
 node 3 is receiving packet from node 2
 Node 3's distance table updated.

	via	
D	3	0 2
0	7	4

ITCS 6166/8166 - Computer Communications and Networks

1	8	3
2	9	2

Due to vector change, Packet is being sent to node 0 from Node 3.

Due to vector change, Packet is being sent to node 2 from Node 3.

rtupdate0 is called at t= 21:57:21:872

node 0 is receiving packet from node 3

Node 0's distance table updated.

	via		
D 0	1	2	3
1	1	4	15
2	2	3	9
3	4	5	7

rtupdate2 is called at t= 21:57:21:942

node 2 is receiving packet from node 0

rtupdate3 is called at t= 21:57:21:942

node 3 is receiving packet from node 0

rtupdate0 is called at t= 21:57:21:872

node 0 is receiving packet from node 2

rtupdate2 is called at t= 21:57:21:942

node 2 is receiving packet from node 1

Node 2's distance table updated.

	via		
D 2	0	1	3
0	3	2	9
1	4	1	10
3	8	4	2

rtupdate2 is called at t= 21:57:21:942

ITCS 6166/8166 - Computer Communications and Networks

node 2 is receiving packet from node 3
Node 2's distance table updated.

	via		
D 2	0	1	3
0	3	2	7
1	4	1	10
3	8	4	2

Node 2's distance table updated.

	via		
D 2	0	1	3
0	3	2	7
1	4	1	5
3	8	4	2

rtupdate1 is called at t= 21:57:21:932
node 1 is receiving packet from node 0
Node 1's distance table updated.

	via	
D 1	0	2
0	1	3
2	3	1
3	6	3

rtupdate2 is called at t= 21:57:21:942

ITCS 6166/8166 - Computer Communications and Networks

node 2 is receiving packet from node 0
Node 2's distance table updated.

	via		
D 2	0	1	3
0	3	2	7
1	4	1	5
3	7	4	2

rtupdate0 is called at t= 21:57:21:872
node 0 is receiving packet from node 3
Node 0's distance table updated.

	via		
D 0	1	2	3
1	1	4	10
2	2	3	9
3	4	5	7

rtupdate2 is called at t= 21:57:21:942
node 2 is receiving packet from node 3
Node 2's distance table updated.

	via		
D 2	0	1	3
0	3	2	6
1	4	1	5
3	7	4	2

ITCS 6166/8166 - Computer Communications and Networks

rtupdate1 is called at t= 21:57:21:932
 node 1 is receiving packet from node 0
 Node 1's distance table updated.

	via		
D	1	0	2
0	1		3
2	3	1	
3	5	3	

rtupdate0 is called at t= 21:57:21:872
 node 0 is receiving packet from node 3
 Simulator terminated at t=10000.0, no packets in medium.

Screenshots:

The screenshot shows the NetBeans IDE with the CCN_Proj2 project. The main editor displays the NetworkSimulator.java file. The output window shows the simulation results, including the time when rtupdate0 is called and the final state of the distance table. A separate window titled "Distance Vector Algorithm..." displays the distance table for node 0.

Distance Vector Algorithm...

Entity0 is called at t = 21:21:50:189
 Entity1 is called at t = 21:21:50:218
 Entity2 is called at t = 21:21:50:219
 Entity3 is called at t = 21:21:50:220
 rtupdate0 is called at t = 21:21:50:189
 node 0 is receiving packet from node 2
 Node 0's distance table updated.

	via			
D	0	1	2	3
1	1	4	999	
2	999	3	999	
3	999	999	7	

Node 0's distance table updated.

	via			
D	0	1	2	3
1	1	4	999	
2	999	3	999	

Final Tables:

ITCS 6166/8166 - Computer Communications and Networks

	via		
D 0	1	2	3
1	1	4	10
2	2	3	9
3	4	5	7

	via	
D 1	0	2
0	1	3
2	3	1
3	5	3

	via		
D 2	0	1	3
0	3	2	6
1	4	1	5
3	7	4	2

ITCS 6166/8166 - Computer Communications and Networks

	Via	
D 3	0	2
0	7	4
1	8	3
2	9	2