

R.V. COLLEGE OF ENGINEERING

OBSERVATION / DATA SHEET

Date 13 Jan 2021 Name NISHCHAL J
 Dept./Lab NPS LAB Class 5-C Expt./No. 2.
 Title DISTANCE VECTOR ROUTING - LAB INTERNALS

Q. Write a program to implement Distance Vector Routing protocol for a simple topology of routers.

Ans :

```
#include <stdio.h>

struct node
{
    unsigned dist [20];
    unsigned from [20];
} rt[10];

int main()
{
    int costmatrix [20][20];
    int nodes, i, j, k, count=0;
    printf ("Enter the number of nodes: ");
    scanf ("%d", &nodes); // Enter the nodes
    printf ("Enter the cost matrix: \n");
    for (i=0; i<nodes; i++)
    {
        for (j=0; j<nodes; j++)
        {
            scanf ("%d", &costmatrix[i][j]);
            costmatrix[i][i]=0;
            rt[i].dist[j] = costmatrix[i][j];
            rt[i].from[j] = j;
        }
    }
```

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do

```
{ count = 0;
  for (i=0; i < nodes; i++)
    for (j=0; j < nodes; j++)
      for (k=0; k < nodes; k++)
        { if (rt[i].dist[j] > costmatrix[i][k] + rt[k].dist[j])
            { // Bellman ford algo here
              rt[i].dist[j] = rt[i].dist[k] + rt[k].dist[j];
              rt[i].from[j] = rt[i].from[k];
              count++;
            }
        }
}
```

```
} while (count != 0)
```

```
for (i=0; i < nodes; i++)
```

```
{ printf("For router %d\n", i+1);
```

```
  for (j=0; j < nodes; j++)
```

```
    { printf("%d Node %d via %d Distance %d", j+1,
              rt[i].from[j]+1, rt[i].dist[j]);
```

```
    }
```

```
  printf("\n\n");
```

```
}
```


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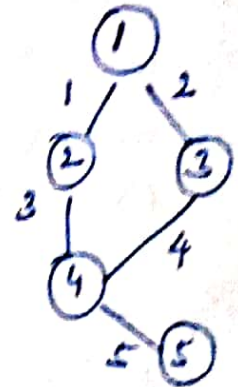
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Title DISTANCE VECTOR ROUTING

Output : Enter the number of nodes : 5

Enter the cost matrix :

0	1	2	999	999
1	0	999	3	999
2	999	0	4	999
999	3	4	0	5
999	999	999	5	0



For router 1 :

Node 1 via 1 Distance 0

Node 2 via 2 Distance 1

Node 3 via 3 Distance 2

Node 4 via 2 Distance 4

Node 5 via 2 Distance 9

For router 2:

Node 1 via 1 Distance 1

Node 2 via 2 Distance 0

Node 3 via 1 Distance 3

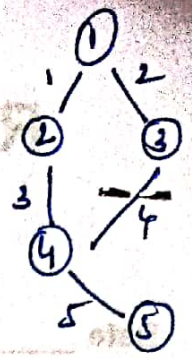
Node 4 via 4 Distance 4

Node 5 via 4 Distance 8

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For router 4:

Node 1 via 2 distance 4
 Node 2 via 2 distance 3
 Node 3 via 3 distance 4
 Node 4 via 4 distance 0
 Node 5 via 5 distance 5



For router 3:

Node 1 via 1 distance 2
 Node 2 via 1 distance 3
 Node 3 via 3 distance 0
 Node 4 via 4 distance 4
 Node 5 via 4 distance 9

For router 5:

Node 1 via 4 distance 9
 Node 2 via 4 distance 8
 Node 3 via 4 distance 9
 Node 4 via 4 distance 0
 Node 5 via 5 distance 0.

LAB

INTERNALS: 4 + 4 + 1

Total: 49

Record				
1	-	6	4	10
2	-	6	4	10
3	-	6	4	10
4	-	6	4	10
5	-	6	4	10
6	-	6	4	10
7	-	6	4	10
8	-	6	4	10

80 ≈ 40

~~40 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 49~~