

CYCLE-2

LAB-2:Write a program for distance vector algorithm to find suitable path for transmission.

Program:

```
#include <iostream>
```

```
#include <stdio.h>
```

```
using namespace std;
```

```
struct node
```

```
{  
    int dist[20];  
    int from[20];  
} route[10];
```

```
int main()
```

```
{  
    int dm[20][20], no;
```

```
    cout << "Enter no of router: "
```

```
    ;
```

```
    cin >> no;
```

```
    cout << "Enter the adjacency matrix:" << endl;
```

```
    for (int i = 0; i < no; i++)
```

```
    {
```

```
        for (int j = 0; j < no; j++)
```

```
        {
```

```
            cin >> dm[i][j];
```

```
            /* Set distance from i to i as 0 */
```

```
            dm[i][i] = 0;
```

```
            route[i].dist[j] = dm[i][j];
```

```
            route[i].from[j] = j;
```

```
        }
```

```
    }
```

```
    int flag;
```

```
    do
```

```
    {
```

```
        flag = 0;
```

```
        for (int i = 0; i < no; i++)
```

```
        {
```

```
            for (int j = 0; j < no; j++)
```

```
            {
```

```
                for (int k = 0; k < no; k++)
```

```
                {
```

```
                    if ((route[i].dist[j]) > (route[i].dist[k] + route[k].dist[j]))
```

```
                    {
```

```
                        route[i].dist[j] = route[i].dist[k] + route[k].dist[j];
```

```
                        route[i].from[j] = k;
```

```
                        flag = 1;
```

```
                    }
```

```
                }
```

```
            }
```

```
        }
```

```

    }
} while (flag);

for (int i = 0; i < no; i++)
{
    cout << "Router info for router: " << i + 1 << endl;
    cout << "Dest\tNext Hop\tCost" << endl;
    for (int j = 0; j < no; j++)
        printf("%d\t%d\t\t%d\n", j + 1, route[i].from[j] + 1, route[i].dist[j]);
}
return 0;
}

```

Output:

C:\Users\prema\Desktop\distance.exe

```

Enter no of router: 5
Enter the adjacency matrix:
0 1 1 0 0
0 0 1 0 1
0 0 0 1 0
0 0 0 0 1
0 0 0 0 0
Router info for router: 1
Dest    Next Hop    Cost
1       1           0
2       4           0
3       4           0
4       4           0
5       5           0
Router info for router: 2
Dest    Next Hop    Cost
1       1           0
2       2           0
3       1           0
4       4           0
5       1           0
Router info for router: 3
Dest    Next Hop    Cost
1       1           0
2       2           0
3       3           0
4       1           0
5       5           0
Router info for router: 4
Dest    Next Hop    Cost
1       1           0
2       2           0
3       3           0
4       4           0
5       1           0
Router info for router: 5
Dest    Next Hop    Cost
1       1           0
2       2           0
3       3           0
4       4           0

```