9/1/23

Lab 10 - Bellman Ford Algorithm

Aim: To write a program for distance vector algorithm to find suitable path for transmission

Code:

~~int main~~

```
#include <iostream.h>
#include <stdio.h>
using namespace std;

struct node {
        int dest[20];
        int from[20];
} rute[10];

int main()
{
 int dm[20][20], no;

cout << "Enter the number of nodes" << endl;
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];

                dm[i][i] = 0;
                rute[i].dest[j] = dm[i][j];
                rute[i].from[j] = i;
        }
}
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 << "Routing info for router : " << i+1 << endl;
    cout << " Dest \t Next hop \t Dist " << endl;
    for (int j = 0; j < no; j++)
        printf("%d \t %d \t %d \n", j+1,
            route[i].from[j]+1, route[i].dist[j]);
}
return 0;
}
```

Output: Enter the number of nodes:
3

Enter the distance matrix.
0 2 99
1 0 99
3 2 0
1

Routing info for router 1.

Dest	Next hop.	Dist.
1	1	0
2	2	2
3	3	99

Routing info for Router 2

Dest	Next hop	Dist
1	1	1
2	2	0
3	3	99

Routing info for Router 3

Dest	Next hop	Dist.
1	1	3
2	2	2
3	3	0