Lab: Week 9 Bellman Ford Algorithm & Dijikstra's Algorithm

Exp 3: Write a program for distance vector algorithm to find suitable path for transmission.

Program:

```
#include <stdio.h>
struct node
{
   unsigned dist [20];
   unsigned from [20];
}
 rt [10];
int main ()
{
 int costmat [20][20];
 int nodes, i, j, k, count =0;
 printf ("\n Enter the number of nodes :");
  scanf ("%d", &nodes);
 printf ("\n Enter the cost matrix :\n");
 for (i= 0; i< nodes; i++)
  {
      for (j=0; j < nodes ;j++)
     {
       scanf ("%d", &costmat [i] [j]);
        costmat [i] [j] =0;
          rt [i]. dist [j] = costmat [i] [j];
          rt [i] .from [j] = j;
     }
  }
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] > cost mat [i][k]+rt[k].dist [j])
          {
          rt[i].dist [j] = rt[i].dist [k] + rt[k] . dist [j];
            rt[i].from [j] = k;
              count++;
          }
} while (count!=0);
    for (i=0; i<nodes ; i++)
    {
        printf ("\n For router %d \n", i+1);
            for (j=0; j<nodes ; j++)
            {
                printf ("\t\n node %d via %d
            Distance %d ", j+1, rt[i].from[j]+1,
                                rt[i].dist[j]);
            }
        }
    printf ("\n\n");
}
```

OUTPUT:

```
Enter the number of nodes : 3

Enter the cost matrix :
0  2  7
2  0  1
7  1  0
```

For router 1

node 1 via 1 Distance 0
node 2 via 2 Distance 2
node 3 via 2 Distance 3.

For router 2

node 1 via 1 Distance 2
node 2 via 2 Distance 0
node 3 via 3 Distance 1

For router 3

node 1 via 2 Distance 3
node 2 via 2 Distance 1
node 3 via 3 Distance 0.