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: