Design and implement a C program to route the packet in

a network using distance vector algorithm

#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("\nEnter the number of nodes : ");

scanf("%d",&nodes);//Enter the nodes

printf("\nEnter the cost matrix :\n");

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

{

     for(j=0;j<nodes;j++)

     {

         scanf("%d",&costmat[i][j]);

         costmat[i][i]=0;

         rt[i].dist[j]=costmat[i][j];//initialise the distance equal to cost matrix

         rt[i].from[j]=j;

     }

}

     do

     {

         count=0;

         for(i=0;i<nodes;i++)//We choose arbitary vertex k and we calculate the direct distance from the node i to k using the cost matrix

         //and add the distance from k to node j

         for(j=0;j<nodes;j++)

         for(k=0;k<nodes;k++)

             if(rt[i].dist[j]>costmat[i][k]+rt[k].dist[j])

             {//We calculate the minimum distance

                 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\n For router %d\n",i+1);

         for(j=0;j<nodes;j++)

         {

             printf("\t\nnode %d via %d Distance %d ",j+1,rt[i].from[j]+1,rt[i].dist[j]);

         }

     }

printf("\n\n");

}

OUTPUT

A picture containing calendar

Description automatically generated