7. Implement distance vector routing algorithm for obtaining routing tables at each node.

#include<stdio.h>

struct node

{

unsigned dist[20];

unsigned from[20];

}

rt[20];

int main()

{

int dmat[20][20];int n,i,j,k,count=0;

printf("\n Enter number of nodes:");

scanf("%d",&n);

printf("Enter cost matrix:\n");

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

for(j=0;j<n;j++)

{

scanf("%d",&dmat[i][j]);

dmat[i][i]=0;

rt[i].dist[j]=dmat[i][j];

rt[i].from[j]=j;

}

do

{

count=0;

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

for(j=0;j<n;j++)

for(k=0;k<n;k++)

if(rt[i].dist[j]>dmat[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<n;i++)

{

printf("\n State value for router %d is \n",i+1);

for(j=0;j<n;j++)

{

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

}

}

}

Text

Description automatically generated