**From a given vertex in a weighted connected graph, find shortest paths to other vertices using Dijkstra's algorithm.**

#include<stdio.h>

#include<conio.h>

void main()

{

int i,j,n,v,k,min,u,c[20][20],s[20],d[20];

clrscr();

printf("\n Enter the no. of vertices : ");

scanf("%d",&n);

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

printf("\n Enter 999 for no edge ");

for(i=1;i<=n;i++)

{

for(j=1;j<=n;j++)

{

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

}

}

printf("\n Enter the source vertex : ");

scanf("%d",&v);

for(i=1;i<=n;i++)

{

s[i]=0;

d[i]=c[v][i];

}

d[v]=0;

s[v]=1;

for(k=2;k<=n;k++)

{

min=999;

for(i=1;i<=n;i++)

{

if((s[i]==0)&&(d[i]<min))

{

min=d[i];

u=i;

}

}

s[u]=1;

for(i=1;i<=n;i++)

{

if(s[i]==0)

{

if(d[i]>(d[u]+c[u][i]))

{

d[i]=d[u]+c[u][i];

}

}

}

}

printf("\n The shortest distance from %d is ",v);

for(i=1;i<=n;i++)

{

printf("\n %d --> %d = %d ",v,i,d[i]);

}

getch();

}

Output:

