**ADA LAB-16**

* **Djikstra’s algorithm to find shortest paths to other vertices from a given vertex in a weighted connected graph.**
  + - * **Program**

#include<stdio.h>

#include<conio.h>

void dijkstras();

int c[10][10],n,src;

int main()

{

int i,j;

printf("\nenter the no of vertices:\t");

scanf("%d",&n);

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

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

{

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

{

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

}

}

printf("\nenter the source node:\t");

scanf("%d",&src);

dijkstras();

getch();

}

void dijkstras()

{

int vis[10],dist[10],u,j,count,min;

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

{

dist[j]=c[src][j];

}

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

{

vis[j]=0;

}

dist[src]=0;

vis[src]=1;

count=1;

while(count!=n)

{

min=9999;

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

{

if(dist[j]<min&&vis[j]!=1)

{

min=dist[j];

u=j;

}

}

vis[u]=1;

count++;

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

{

if(min+c[u][j]<dist[j]&&vis[j]!=1)

{

dist[j]=min+c[u][j];

}

}

}

printf("\nthe shortest distance is:\n");

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

{

printf("\n%d----->%d=%d",src,j,dist[j]);

}

}

* + - * **Output**

