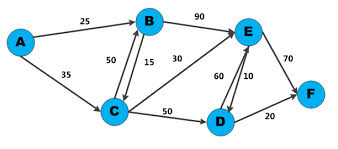
PRAFFUL NATH MATHUR

13BCE1092

12/10/2015

Assume Mr. Peter plan a tour to visit few cities like B, C, D, E, and F from city A. Compute the minimum distance that Mr. Ben takes to visit each city from city A.



CODE:

#include "stdio.h"

#include "conio.h"

#define infinity 999

void dij(int n,int v,int cost[10][10],int dist[])

{

int i,u,count,w,flag[10],min;

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

flag[i]=0,dist[i]=cost[v][i];

count=2;

while(count<=n)

{

min=99;

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

if(dist[w]<min && !flag[w])

min=dist[w],u=w;

flag[u]=1;

count++;

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

if((dist[u]+cost[u][w]<dist[w]) && !flag[w])

dist[w]=dist[u]+cost[u][w];

}

}

main()

{

int n,v,i,j,cost[10][10],dist[10];

//clrscr();

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

scanf("%d",&n);

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

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

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

{

printf("\nCost: %d -> %d: ",i,j);

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

if(cost[i][j]==0)

cost[i][j]=infinity;

}

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

scanf("%d",&v);

dij(n,v,cost,dist);

printf("\n Shortest path:\n");

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

if(i!=v)

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

getch();

}

Output:

Enter the number of nodes:6

Enter the cost matrix:

Cost: 1 -> 1: 0

Cost: 1 -> 2: 25

Cost: 1 -> 3: 35

Cost: 1 -> 4: 0

Cost: 1 -> 5: 0

Cost: 1 -> 6: 0

Cost: 2 -> 1: 0

Cost: 2 -> 2: 0

Cost: 2 -> 3: 15

Cost: 2 -> 4: 90

Cost: 2 -> 5: 0

Cost: 2 -> 6: 0

Cost: 3 -> 1: 0

Cost: 3 -> 2: 50

Cost: 3 -> 3: 0

Cost: 3 -> 4: 50

Cost: 3 -> 5: 30

Cost: 3 -> 6: 0

Cost: 4 -> 1: 0

Cost: 4 -> 2: 0

Cost: 4 -> 3: 0

Cost: 4 -> 4: 0

Cost: 4 -> 5: 60

Cost: 4 -> 6: 20

Cost: 5 -> 1: 0

Cost: 5 -> 2: 0

Cost: 5 -> 3: 0

Cost: 5 -> 4: 0

Cost: 5 -> 5: 10

Cost: 5 -> 6: 70

Cost: 6 -> 1: 0

Cost: 6 -> 2: 0

Cost: 6 -> 3: 0

Cost: 6 -> 4: 0

Cost: 6 -> 5: 0

Cost: 6 -> 6: 0

Enter the source matrix:1

Shortest path:

1->2,cost=25

1->3,cost=35

1->4,cost=85

1->5,cost=65

1->6,cost=105