ASSIGNMENT NO 08

ASSIGNMENT NO. 08

NAME : BHOGALE LAUKIK BHAGAWAN

ROLL NO 14

SEIT BATCH A

#include<iostream>

#define v 7

#define inf 999

using namespace std;

class MST

{

public:

int dist[v],parent[v],visited[v];

int G[v][v]={{0,2,3,4,0,0,0},

{2,0,0,0,8,0,0},

{3,0,0,0,6,0,0},

{4,0,0,0,4,5,0},

{0,8,6,4,0,0,7},

{0,0,0,5,0,0,9},

{0,0,0,0,7,9,0},

};

void display();

int selectmin();

void dijikstra();

};

void MST::display()

{

for(int i=0;i<v;i++)

{

for(int j=0;j<v;j++)

cout<<G[i][j]<<"\t";

cout<<endl;

}

}

int MST::selectmin()

{

int min=inf;

int vertex;

for(int i=0;i<v;i++)

{

if(visited[i]==0 && dist[i]<=min)

{

vertex=i;

min=dist[i];

}

}

return vertex;

}

void MST::dijikstra()

{

int s;

for(int i=0;i<v;i++)

{

dist[i]=inf;

parent[i]=-1;

visited[i]=0;

}

cout<<"Enter source vertex :"<<endl;

cin>>s;

int sv=s;

dist[s]=0;

for(int i=0;i<v-1;i++)

{

visited[s]=1;

for(int j=0;j<v;j++)

{

if(G[s][j]!=0 && visited[j]==0 && G[s][j]<dist[j])

{

dist[j]=G[s][j];

parent[j]=s;

}

}

s=selectmin();

}

for(int i=0;i<v;i++)

{

if(dist[i]!=0)

{

int j=i;

cout<<"\n"<<j;

while(parent[j]!=sv && parent[i]!=-1)

{

cout<<"<-"<<parent[j];

j=parent[j];

}

cout<<"<-"<<sv;

cout<<"="<<dist[i]<<endl;

}

}

}

int main()

{

MST m;

m.display();

m.dijikstra();

return 0;

}

\*\*\*\*\*OUTPUT\*\*\*\*\*

0 2 3 4 0 0 0

2 0 0 0 8 0 0

3 0 0 0 6 0 0

4 0 0 0 4 5 0

0 8 6 4 0 0 7

0 0 0 5 0 0 9

0 0 0 0 7 9 0

Enter source vertex :

0

1<-0=2

2<-0=3

3<-0=4

4<-3<-0=4

5<-3<-0=5

6<-4<-3<-0=7

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}

return vertex;

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{

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parent[j]=s;

}

}

s=selectmin();

}

for(int i=0;i<v;i++)

{

if(dist[i]!=0)

{

int j=i;

cout<<"\n"<<j;

while(parent[j]!=sv && parent[i]!=-1)

{

cout<<"<-"<<parent[j];

j=parent[j];

}

cout<<"<-"<<sv;

cout<<"="<<dist[i]<<endl;

}

}

}

int main()

{

MST m;

m.display();

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return 0;

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Enter source vertex :

0

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2<-0=3

3<-0=4

4<-3<-0=4

5<-3<-0=5

6<-4<-3<-0=7