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EX NO 14

DIJIKSTRA’S ALGORITHM

#include <stdio.h>

#define size 8

#define INFINITY 10000000;

int g[size][size]={ {0,2,6,0,0,0,0,0},

{2,0,0,2,6,0,0,0},

{6,0,0,1,0,0,4,0},

{0,2,1,0,0,2,0,0},

{0,6,0,0,0,3,0,1},

{0,0,0,2,3,0,2,0},

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

{0,0,0,0,1,0,2,0} };

struct vertex\_info

{

int length;

int pred;

char state;

}v[size];

int main()

{

int i;

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

{

v[i].length=INFINITY;

v[i].pred=-1;

v[i].state='N';

}

int s=0;

int d=7;

v[s].length=0;

v[s].state='V';

do

{

int i;

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

{

if (g[s][i]!=0 &&v[i].state=='N')

{

if(v[i].length>v[s].length+g[s][i])

{

v[i].length=g[s][i]+v[s].length;

v[i].pred=s;

printf("\nlength[%d]=%d\tpred[%d]=%d",i,v[i].length,i,v[i].pred);

}

}

}

int min=INFINITY;

s=0;

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

{

if(v[i].state=='N'&& v[i].length<min)

{

min=v[i].length;

s=i;

}

}

v[s].state='V';

}while(s!=d);

i=size;

int path[size];

printf("\n\nPath=%d->",s);

do

{

path[i--]=s;

s=v[s].pred;

printf("%d->",s);

}while(s>0);

}