OPEN SOURCE SHORTEST PATH FIRST PROTOCOL

PROGRAM:

#include <stdio.h>

#include <string.h>

int main()

{

int count,src\_router,i,j,k,w,v,min;

int cost\_matrix[100][100],dist[100],last[100];

int flag[100];

printf("\n Enter the number of routers");

scanf("%d",&count);

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

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

{

for(j=0;j<count;j++)

{

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

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

if(cost\_matrix[i][j]<0)

cost\_matrix[i][j]=1000;

}

}

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

scanf("%d",&src\_router);

for(v=0;v<count;v++)

{

flag[v]=0;

last[v]=src\_router;

dist[v]=cost\_matrix[src\_router][v];

}

flag[src\_router]=1;

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

{

min=1000;

for(w=0;w<count;w++)

{

if(!flag[w])

if(dist[w]<min)

{

v=w;

min=dist[w];

}

}

flag[v]=1;

for(w=0;w<count;w++)

{

if(!flag[w])

if(dist[w]<min)

{

v=w;

min=dist[w];

}

}

flag[v]=1;

for(w=0;w<count;w++)

{

if(!flag[w])

if(min+cost\_matrix[v][w]<dist[w])

{

dist[w]=min+cost\_matrix[v][w];

last[w]=v;

}

}

}

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

{

printf("\n%d==>%d:Path taken:%d",src\_router,i,i);

w=i;

while(w!=src\_router)

{

printf("\n<--%d",last[w]);w=last[w];

}

printf("\n Shortest path cost:%d",dist[i]);

}

}

OUTPUT:

[201603052@Putty ~]$ vi ospf.c

[201603052@Putty ~]$ cc ospf.c

[201603052@Putty ~]$ ./a.out

Enter the number of routers5

Enter the cost matrix values:

0->0:4

0->1:5

0->2:4

0->3:3

0->4:7

1->0:8

1->1:1

1->2:5

1->3:9

1->4:2

2->0:1

2->1:5

2->2:1

2->3:1

2->4:2

3->0:1

3->1:1

3->2:1

3->3:1

3->4:1

4->0:1

4->1:1

4->2:1

4->3:1

4->4:1

Enter the source router:2

2==>0:Path taken:0

<--2

Shortest path cost:1

2==>1:Path taken:1

<--3

<--2

Shortest path cost:2

2==>2:Path taken:2

Shortest path cost:1

2==>3:Path taken:3

<--2

Shortest path cost:1

2==>4:Path taken:4

<--2

Shortest path cost:2[201603052@Putty ~]$