**TRAVELLING SALESMAN PROBLEM**

#include<iostream.h>

#include<conio.h>

int ary[10][10],completed[10],n,cost=0;

void takeinput()

{

clrscr();

int i,j;

cout<<"Enter the Number of Villages:";

cin>>n;

cout<<"\n Enter the Cost Matrix:\n";

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

{

cout<<"Enter Element of Row:"<<i+1<<"\n";

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

cin>>ary[i][j];

completed[i]=0;

}

cout<<"\n\n The Cost list is:";

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

{

cout<<"\n";

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

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

}

}

int least(int c)

{

int i,nc=999;

int min=999,kmin;

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

{

if((ary[c][i]!=0)&&(completed[i]==0))

if(ary[c][i]+ary[i][c]<min)

{

min=ary[i][0]+ary[c][i];

kmin=ary[c][i];

nc=i;

}

}

if(min!=99)

cost+=kmin;

return nc;

}

void mincost(int city)

{

int i,ncity;

completed[city]=1;

cout<<city+1<<"-->";

ncity=least(city);

if(ncity==999)

{

ncity=0;

cout<<ncity+1;

cost+=ary[city][ncity];

return;

}

mincost(ncity);

}

int main()

{

takeinput();

cout<<"\n The Path is:\n";

mincost(0);

cout<<"\n Minimum Cost is:"<<cost;

getch();

return 0;

}

**OUTPUT:**Enter the Number of Villages:3

Enter the Cost Matrix:

Enter Element of Row:1

2

3

4

Enter Element of Row:2

3

2

1

Enter Element of Row:3

4

2

3

The Cost list is:

2 3 4

3 2 1

4 2 3

**The Path is:**

1-->2-->3-->1

Minimum Cost is:10