## DAA LAB

## LAB NO:5 Implement any scheme to find the optimal solution for the Travelling Salesman Problem.

PROGRAM:

**#include<stdio.h>**

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

**void takeInput()**

**{**

**int i,j;**

**printf("Enter the number of villages: ");**

**scanf("%d",&n);**

**printf("\nEnter the Cost Matrix\n");**

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

**{**

**printf("\nEnter Elements of Row: %d\n",i+1);**

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

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

**completed[i]=0;**

**}**

**printf("\n\nThe cost list is:");**

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

**{**

**printf("\n");**

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

**printf("\t%d",ary[i][j]);**

**}**

**}**

**void mincost(int city)**

**{**

**int i,ncity;**

**completed[city]=1;**

**printf("%d--->",city+1);**

**ncity=least(city);**

**if(ncity==999)**

**{**

**ncity=0;**

**printf("%d",ncity+1);**

**cost+=ary[city][ncity];**

**return;**

**}**

**mincost(ncity);**

**}**

**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!=999)**

**cost+=kmin;**

**return nc;**

**}**

**int main()**

**{**

**takeInput();**

**printf("\n\nThe Path is:\n");**

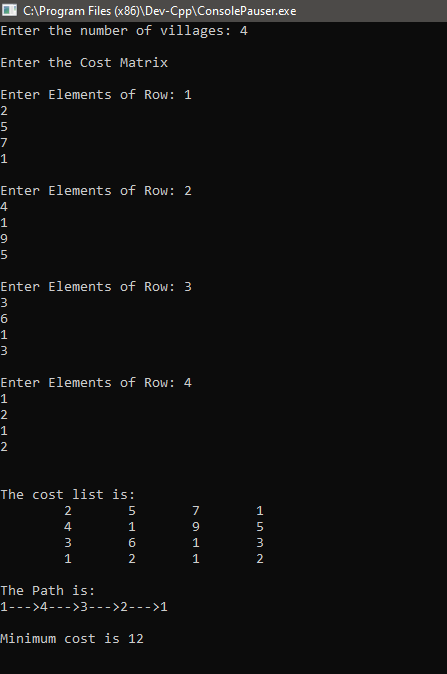
**mincost(0); //passing 0 because starting vertex**

**printf("\n\nMinimum cost is %d\n ",cost);**

**return 0;**

**}**

OUTPUT:

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