

**Aim:**

Write a C program to implement **Travelling Sales Person** problem using **Dynamic programming**.

**Source Code:**

ISP.c

```
#include<stdio.h>
int ary[10][10],completed[10],n,cost=0;
void takeInput()
{
    int i,j;
    printf("Number of villages: ");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        for(j=0;j<n;j++)
            scanf("%d",&ary[i][j]);
        completed[i]=0;
    }
    printf("The 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("\nThe Path is:\n");
    mincost(0);
    printf("\nMinimum cost is %d",cost);
    return 0;
}

```

### Execution Results - All test cases have succeeded!

Test Case - 1			
User Output			
Number of villages: 3			
0 10 15			
10 0 35			
15 35 0			
The cost list is:			
0	10	15	
10	0	35	
15	35	0	
The Path is:			
1-->2-->3-->1			
Minimum cost is 60			