S.No: 27	Exp. Name: ***Travelling Sales Person problem using Dynamic programming***	Date:2023-06-17

Aim:

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

Source Code:

TSP.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];
```


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```
          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

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