

```
Travelling-Salseman-problem.cpp x
Practical-7 > C++ Travelling-Salseman-problem.cpp > ...
1 // Author: Anish Tilloo
2 // Roll No. : 34
3 // Program: Travelling Salesman Problem
4
5 #include <bits/stdc++.h>
6 using namespace std;
7
8 #define INT_MAX 999999
9 int n;
10 int** dist;
11 int TSP(int mask, int pos){
12     int VISITED_ALL = (1 << n) - 1;
13     if (mask == VISITED_ALL)
14     {
15         return dist[pos][0];
16     }
17
18     int ans = INT_MAX;
19     for (int i = 0; i < n; i++)
20     {
21         if ((mask & (1 << i)) == 0)
22         {
```

```
Travelling-Salseman-problem.cpp x
Practical-7 > C++ Travelling-Salseman-problem.cpp > ...
18     int ans = INT_MAX;
19     for (int i = 0; i < n; i++)
20     {
21         if ((mask & (1 << i)) == 0)
22         {
23             int newAns = dist[pos][i] + TSP(mask | (1 << i), i);
24             ans = min(ans, newAns);
25         }
26     }
27     return ans;
28 }
29
30 int main(){
31     cout << "Enter the no of cities: " << endl;
32     cin >> n;
33     dist = new int*[n];
34     for (int i = 0; i < n; i++)
35     {
36         dist[i] = new int[n];
37     }
38
39     cout << "Enter the matrix: " << endl;
40     for (int i = 0; i < n; i++)
```

```
Travelling-Salseman-problem.cpp - DAA-practical - Visual Studio Code
Travelling-Salseman-problem.cpp x
Practical-7 > C++ Travelling-Salseman-problem.cpp > ...
31     cout << "Enter the no of cities: "<< endl;
32     cin >> n;
33     dist = new int*[n];
34     for (int i = 0; i < n; i++)
35     {
36         dist[i] = new int[n];
37     }
38
39     cout << "Enter the matrix: " << endl;
40     for (int i = 0; i < n; i++)
41     {
42         for (int j = 0; j < n; j++)
43         {
44             cin >> dist[i][j];
45         }
46     }
47
48     cout << "Cost is: " << TSP(1, 0) << endl;
49
50
51     return 0;
52 }
```

Enter the no of cities:

4

Enter the matrix:

0 4 3 2

4 0 2 1

2 1 0 5

3 5 1 0

Cost is: 8

PS E:\College-Work\Sixth-Semester\DAA-practical\Practical-7> |