

## 9. Write the python to implement Travelling Salesman Problem.

### Program:

```
from sys import maxsize
from itertools import permutations
V = 4

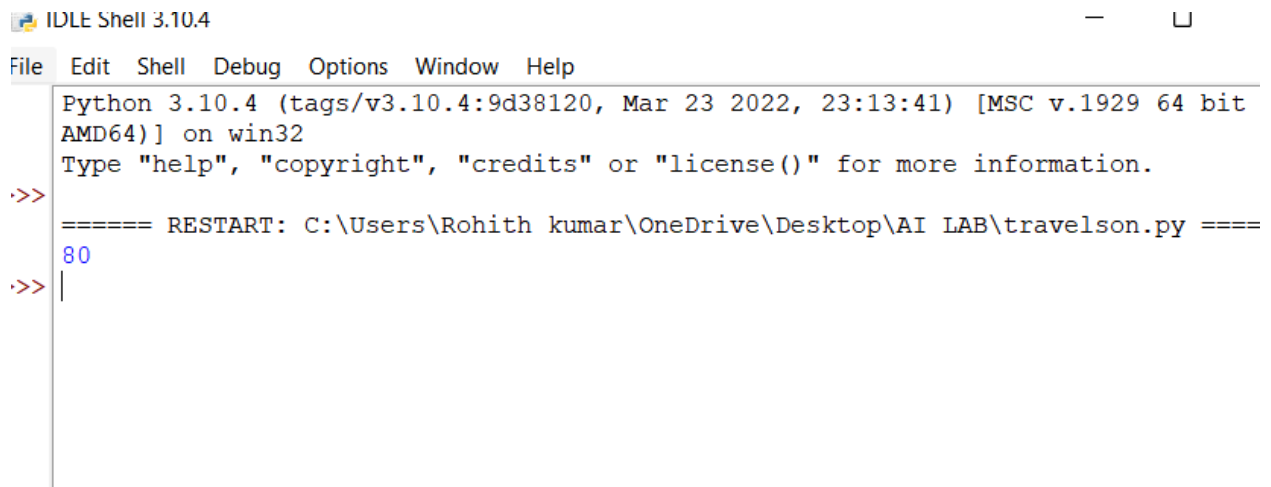
def travellingSalesmanProblem(graph, s):
    vertex = []
    for i in range(V):
        if i != s:
            vertex.append(i)

    min_path = maxsize
    next_permutation=permutations(vertex)
    for i in next_permutation:
        current_pathweight = 0
        k = s
        for j in i:
            current_pathweight += graph[k][j]
            k = j
        current_pathweight += graph[k][s]
        min_path = min(min_path, current_pathweight)
    return min_path

if __name__ == "__main__":
    graph = [[0, 10, 15, 20], [10, 0, 35, 25],
             [15, 35, 0, 30], [20, 25, 30, 0]]

    s = 0
    print(travellingSalesmanProblem(graph, s))
```

### OUTPUT:



```
IDLE Shell 3.10.4

File Edit Shell Debug Options Window Help
Python 3.10.4 (tags/v3.10.4:9d38120, Mar 23 2022, 23:13:41) [MSC v.1929 64 bit
AMD64] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\Rohith kumar\OneDrive\Desktop\AI LAB\travelson.py =====
80
>>> |
```