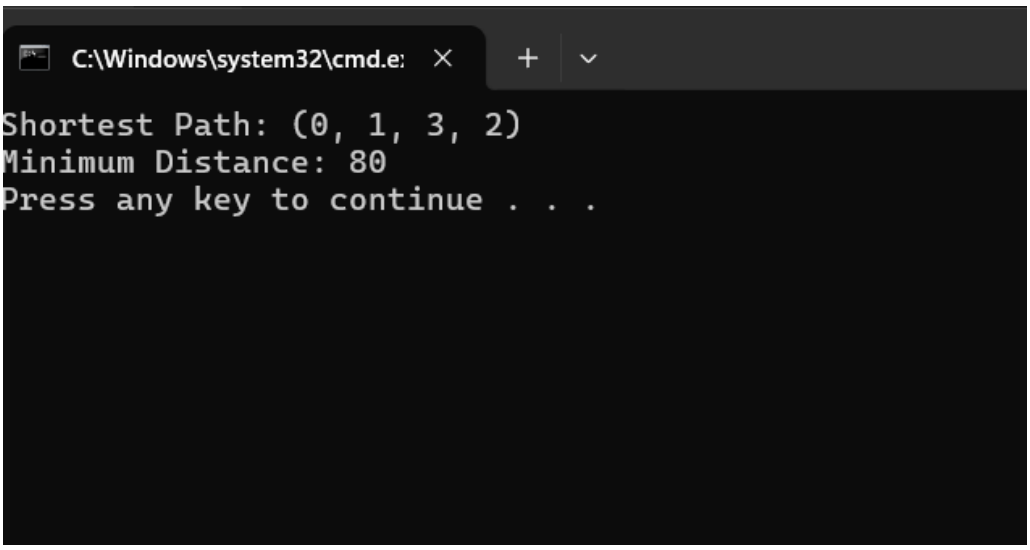
101)Travelling salesman problem

CODE:

```
import itertools

def tsp_brute_force(distances):
    cities = list(range(len(distances)))
    shortest_path = None
    min_distance = float('inf')

    for path in itertools.permutations(cities):
        distance = sum(distances[path[i - 1]][path[i]] for i in range(1, len(path)))
        distance += distances[path[-1]][path[0]]

        if distance < min_distance:
            min_distance = distance
            shortest_path = path

    return shortest_path, min_distance

distances = [
    [0, 10, 15, 20],
    [10, 0, 35, 25],
    [15, 35, 0, 30],
    [20, 25, 30, 0]
]

shortest_path, min_distance = tsp_brute_force(distances)
print("Shortest Path:", shortest_path)
print("Minimum Distance:", min_distance)
```

OUTPUT:



TIME COMPLEXITY : O(n*n!)