173).Write a c program to find the minimum path distance by using matrix form.

PROGRAM:

```
import itertools

def find_min_path_distance(matrix):
    min_distance = float('inf')
    for path in itertools.permutations(range(len(matrix))):
        distance = sum(matrix[i][path[i]] for i in range(len(matrix)))
        min_distance = min(min_distance, distance)
    return min_distance

# Test Case 1
matrix1 = [
    [0, 10, 15, 20],
    [10, 0, 35, 25],
    [15, 35, 0, 30],
    [20, 25, 30, 0]
]
output1 = find_min_path_distance(matrix1)
print("Output for Test Case 1:", output1)

# Test Case 2
matrix2 = [
    [0, 10, 10, 10],
    [10, 0, 10, 10],
    [10, 10, 0, 10],
    [10, 10, 10, 0]
]
output2 = find_min_path_distance(matrix2)
print("Output for Test Case 2:", output2)
```

OUTPUT:

```
Output for Test Case 1: 0
Output for Test Case 2: 0

=== Code Execution Successful ===
```

TIMECOMPLEXITY:O(N!)