**Experiment No:** 07

**Experiment Name:** Calculating shortest path matrix using Floyd Warshall.

**Code:**

```
def floyd_warshall(graph):
    n = len(graph)
    dist = [row[:] for row in graph]
    for k in range(n):
        for i in range(n):
            for j in range(n):
                dist[i][j] = min(dist[i][j], dist[i][k] + dist[k][j])
    return dist


graph = [
    [0, 8, float('inf'), 5],
    [4, 0, 3, float('inf')],
    [7, float('inf'), 0, 9],
    [1, float('inf'), float('inf'), 0]
]


shortest_paths = floyd_warshall(graph)


print("shortest path matrix: ")
for row in shortest_paths:
    print(row)
```

**Output:**

```
shortest path matrix:
[0, 8, 11, 5]
[4, 0, 3, 9]
[7, 15, 0, 9]
[1, 9, 12, 0]
```