Problem – 4 Floyd Warshall Algorithm

```
def floyd_warshall(graph):
    num_vertices = len(graph)
    dist = [[float('inf') for _ in range(num_vertices)] for _ in range(num_vertices)]

    for i in range(num_vertices):
        for j in range(num_vertices):
            if i == j:
                dist[i][j] = 0
            elif graph[i][j] is not None:
                dist[i][j] = graph[i][j]

    for k in range(num_vertices):
        for i in range(num_vertices):
            for j in range(num_vertices):
                # Check if the path through vertex k is shorter
                if dist[i][j] > dist[i][k] + dist[k][j]:
                    dist[i][j] = dist[i][k] + dist[k][j]

    return dist

graph = [
    [0, 3, None, 7],
    [8, 0, 2, None],
    [5, None, 0, 1],
    [2, None, None, 0]
]

result = floyd_warshall(graph)
```

```
for row in result:
    print(row)
```