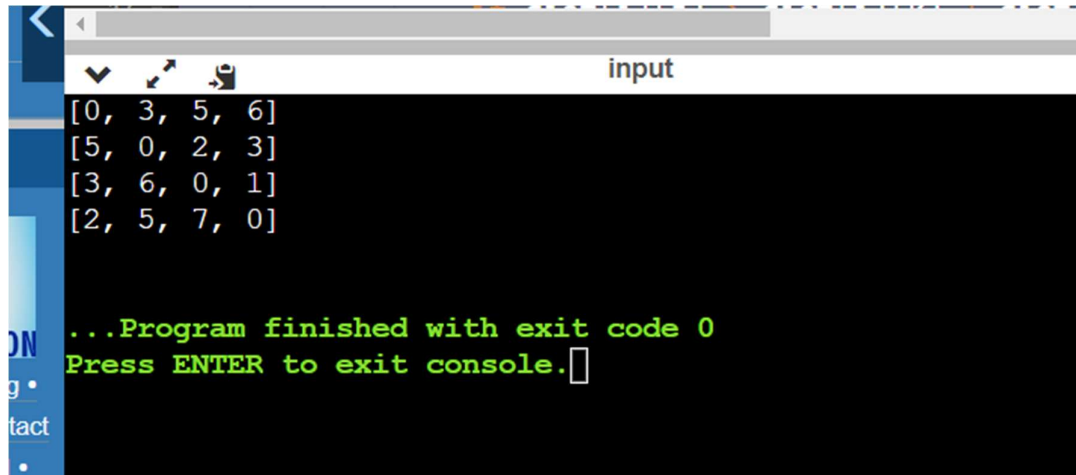


Problem – 4 Floyd Warshall Algorithm

```
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)



```
input
[0, 3, 5, 6]
[5, 0, 2, 3]
[3, 6, 0, 1]
[2, 5, 7, 0]

...Program finished with exit code 0
Press ENTER to exit console.
```