EXPERIMENT 6

PROBLEM TITLE

Implementation of the Travelling Salesman Problem (TSP).

CODE

```
import numpy as np

def tsp_greedy(dist_matrix):
    num_cities = len(dist_matrix)
    visited = [False] * num_cities
    tour = [0]
    visited[0] = True

    for _ in range(1, num_cities):
        last_city = tour[-1]
        nearest_city = np.argmin([dist_matrix[last_city][i] if not visited[i] else
float('inf') for i in range(num_cities)])
        tour.append(nearest_city)
        visited[nearest_city] = True

    tour.append(0)  # Return to start
    return tour

# Example distance matrix
dist_matrix = np.array([
    [0, 10, 15, 20],
    [10, 0, 35, 25],
    [15, 35, 0, 30],
    [20, 25, 30, 0]
])

tour = tsp_greedy(dist_matrix)
print("TSP Tour:", tour)
```

EXPECTED OUTPUT

```
TSP Tour: [0, 1, 3, 2, 0]
```