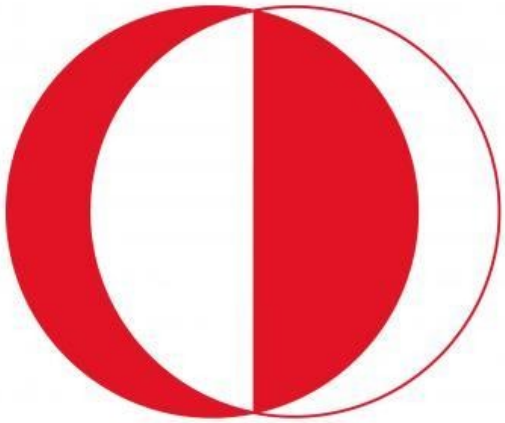

METU
NORTHERN CYPRUS
CAMPUS

CNG 462 COURSE ASSIGNMENT 1

1.

Initial State: The start point

Actions: Go other unvisited points

Transition Model: The state resulting from going a point to another point which have never been visited before.

Goal Test: Going to all places

Path Cost: Distance between nodes

Nearest Neighbor (Heuristic):

This heuristic aims to always choose the nearest neighbor. It can be summarized as:

1. Select a city.
2. Find the nearest node and go there.
3. If there is any unvisited node, repeat step 2.

Greedy (Heuristic)

This heuristic aims to always choose the shortest edge and add it to the path until it doesn't create acycle less than -the number of nodes- edges or increase degree of any node more than two.
We must consider not adding same edge twice.

If we summarize it:

1. Sort all edges.
2. Select the shortest one to the path if it doesn't violate any rules above.
3. If we have less than N edges, repeat step 2.

2.

a.

TSP is to find the cheapest path to visit all nodes. Relaxing it means that there is no need to make aclosed path, only connect all the cities with the lowest cost. This heuristic is admissible, because it will always be shorter or equal to a closed path.

b.

There will be a direct connection or two or more edges will be involved where the triangle inequality shows greater values.