Lab 4: Applying DFS (Depth First Search) on the graph used in Lab 2

Introduction

Depth First Search, commonly known as DFS expands the deepest node in the current fringe of the search tree. This search strategy proceeds immediately to the deepest level of the search tree, whereby the nodes have no successors. As those nodes are expanded, they are dropped from the fringe. Later on, the search "backs up" to the next shallowest node that still has unexplored successors. DFS is better than Breadth First Search (BFS) if goal is found in nodes at a deeper level. However, it is not complete where the maximum depth of a tree is too large.

Description and Tasks

- When a node is expanded in Depth First Search (DFS), the children are added at the front of the queue. This ensures that the children are explored before their parents.
- Modify the code used in Lab 2 so as to model DFS. Add screenshots with different inputs.
- Moreover, the students are required to run the code using different cities as starting location and destination.
- Furthermore, observe the impact of removal of 1 or more edges from the graph.
- Since this lab is based on a graph, you could go from any city to any other city. However, certain routes might take longer than others. Verify this fact using different cities as source and destination.