Lab 5: Applying BFS (Breadth First Search) on the graph used in Lab 2

Introduction

Breadth First Search, also commonly known as *BFS* is a simple strategy in which the root node is expanded first, followed by the successors of the root node. This is followed by the expansion of the successors of the nodes at the 2nd level, and so on. In general, all the nodes are expanded at a given depth in the search tree before any nodes at the next level are expanded.

Description and Tasks

BFS also uses a queue just like DFS, however, the children of the expanded node are added at the back of the queue. This ensures that the parents are always expanded earlier than the children.

- The students have to modify Lab 2 in order to implement BFS. Add screen shots after running the program.
- Just like DFS, you can go from any city to any other city. However, the order of visiting the cities (nodes) would be different as compared to DFS.
- The students in this lab should implement Uniform Cost Search as discussed in the class. Please note that in order to do so, you need to assign some weights to the different edges of the graph. The weights could be the actual road distances between different cities of the Al-Qassim region. Furthermore, priority queue must be used for Uniform Cost Search.