Assignment 2 - Search Algorithms

MACHINE INTELLIGENCE - PESU UE18CS303

[Graded for 5 Points]

Search Algorithms aim at navigating from a start state to a goal state by transitioning through intermediate states. It also consists of a state space which is a set of all possible states where you can be.
There are many informed and uninformed search algorithms that exist and are very popular. A* search, Uniform Cost search (UCS), Depth First Search (DFS), Greedy Search to name a few.

In this assignment you are given a function called tri_traversal which implements three main algorithms which are A* search, Uniform Cost Search (UCS), Depth First Search (DFS).

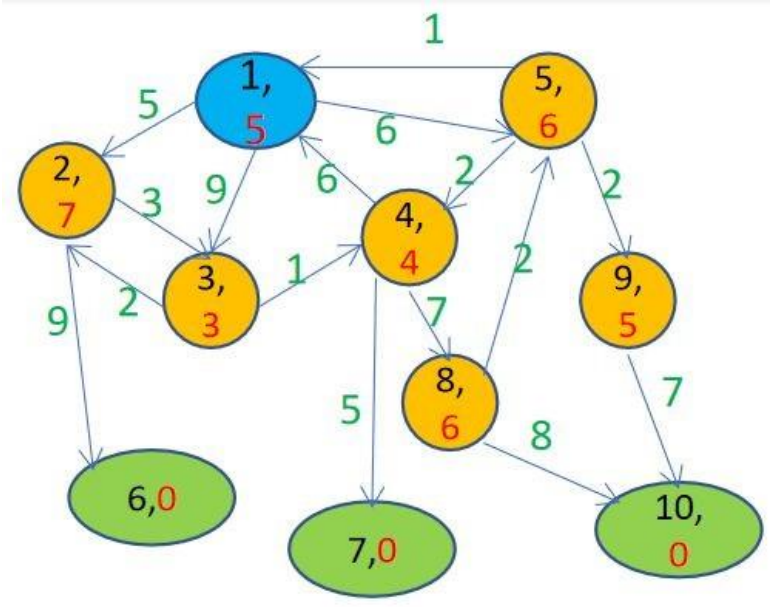
Your task is to complete the code for this function.

You are provided with the following:

- assignment2.py
- Sample_test_case.py to run your sample test cases
  (run this file before renaming your assignment2.py file)

Note: These sample test cases are just for your reference.

SAMPLE TEST CASE GRAPH



Numbers in Black represent Node numbers, numbers in Green represent Cost and numbers in Red represent heuristic values from that node
Start Node is in Blue
Goal Nodes are in Green

Important Points:

- Please do not make changes to the function definitions that are provided to you. Use the skeleton as it has been given. Also do not make changes to the sample test file provided to you. Run it as it is.
- You are free to write any helper functions that can be called in any of these predefined functions given to you.
- Your code will be auto evaluated by our testing script and our dataset and test cases will not be revealed. Please ensure you take care of all edge cases!
- Ensure you follow convention while returning from these functions.
- In case of **ambiguity**, pick nodes in lexicographical order.

DEADLINE : 15th October 2020
(Submission details and procedure will be communicated well before the deadline)