Assignment 3
Algorithm Visualizer v2.0

You have been given the code for Alviz v2.0, which is an algorithm visualizer application.

The code is written in python and is divided into two parts.

The UI :

This part is written using PyQt5. It has been implemented by us.

Features of UI:

1. Number of Nodes: You can provide the number of nodes as input

2. Branching Factor: You can provide branching factor as an input. (It will be required for tree type of graph)

3. Generating different type of Graphs: You can generate three type of random graphs

a. A planar random graph with n nodes.

b. A tree graph with n nodes and branching factor bf.

c. A graph for TSP, it only has the vertices. The final path has to be returned by your algorithm, and it will be plotted.

4. Revert: Click on it to go back to the initial stage of the graph

5. Reset: Cleans the whole drawing panel.

6. Color coding of the final graph displayed:-

Yellow – for node not visited
Magenta – Open Node
Blue – Closed Node
Cyan – Start Node
Red – Goal Node
Gray – Deleted Node
White – Boundary Node
Dark Cyan - Relay Node
Dark Magenta – Kernel Node

You can use other color coding for other type of nodes(if any), based on the algorithm assigned to you.

Mention the color coding for the nodes in README.txt file, If you want to add any comment you can add it in the text file.

The Back-end:

In this part we have provided you with functions for graph generation, co-ordinate to index converter and vice versa. We have provided the move-gen function to you. You have to use it in your respective algorithm. You have to use the global variables like closed nodes,open nodes, adjacency list etc. as per the algorithm assigned to you.

You have to write the code in the Algorithm method mentioned in the code.

Following are the links to the Python file and the Algorithm Assignment document:

Python Code:

Uploaded in moodle as Alviz2.py

Description of Alviz
Uploaded on moodle as Alviz_Guide.pdf

Problem Set:-
Here

Algorithm Assignment -
Here
Dependencies:
You have to install python3 and PyQt5 to run the code

Deadline:
23rd April, 11:55 P.M.

Slots for discussion with T.A.s:

Tuesday : 12 p.m.-1 p.m.
Thursday : 2 p.m. - 3.pm.

How to Submit:
Submit it in a .zip file with the role number of you and your teammate followed by assignment number. Example CS18S034_CS18M111_A3.zip. It should carry the python file. README.txt (if you have any comments). Any other requirement will be informed in the forum.
Caution:
We expect complete honesty from the students. Any form of plagiarism will not be tolerated.