

SEARCHING ALGORITHM VISUALIZER

USER MANUAL GUIDE



1

Open README.txt

- Open README file for instructions on running app



README.txt

22-May-22 3:34 PM

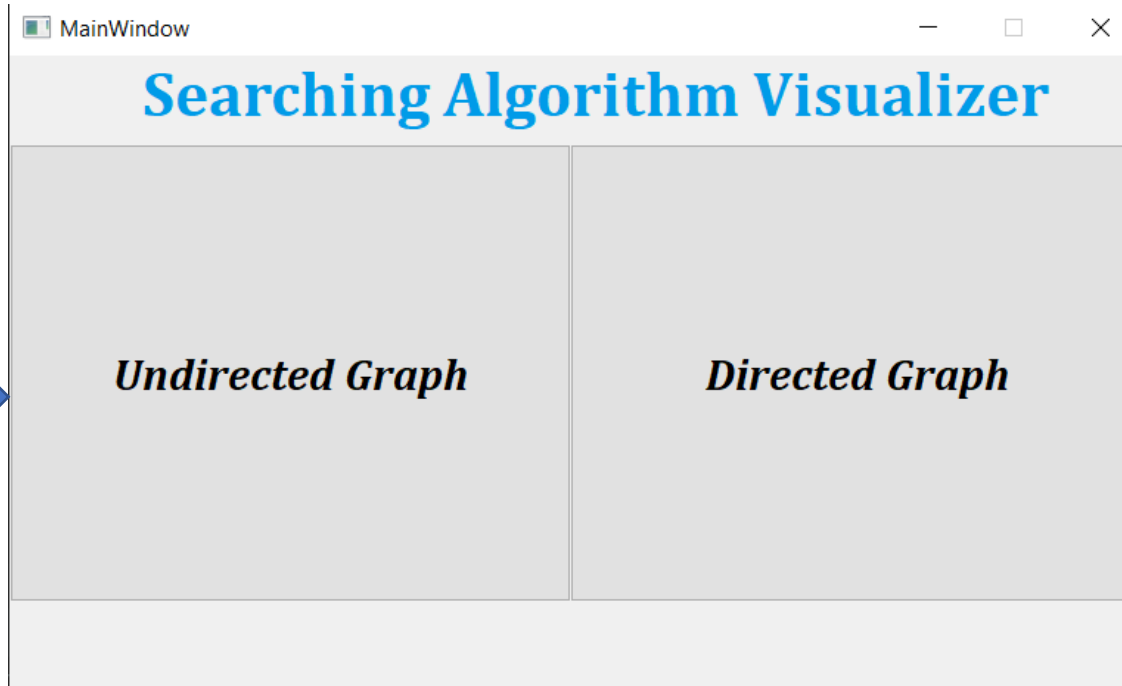
Text Document

2 KB

2

Choose Graph Type

Click to select
Undirected
graph



Click to select
directed graph

3

Main Window

MainWindow

Artificial Intelligence Project

Tree Design	Initial & Final Destinations	Algorithm Choice
ADD NODE	INITIAL STATE 0	CHOOSE YOUR ALGORITHM
DELETE NODE	FINAL STATES <input type="text"/>	Breadth First Search
FROM: 0 TO: 0		CHOOSE DEPTH FOR LIMITED DFS 0
Weight: 0	CLEAR GRAPH	APPLY ALGORITHM
ADD EDGE	CHOOSE GRAPH TYPE	

3.1

Tree Design

Tree Design

Click to add node

ADD NODE

DELETE NODE

Click to delete last node added

Choose the source of edge

FROM: 0 TO: 0

Choose the target of edge

Weight: 0

Choose weight of edge to be added

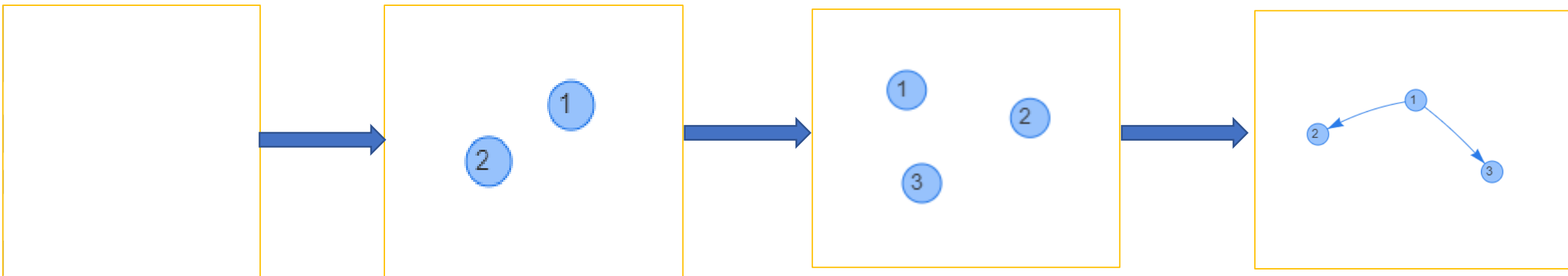
Click to add edge to graph

ADD EDGE

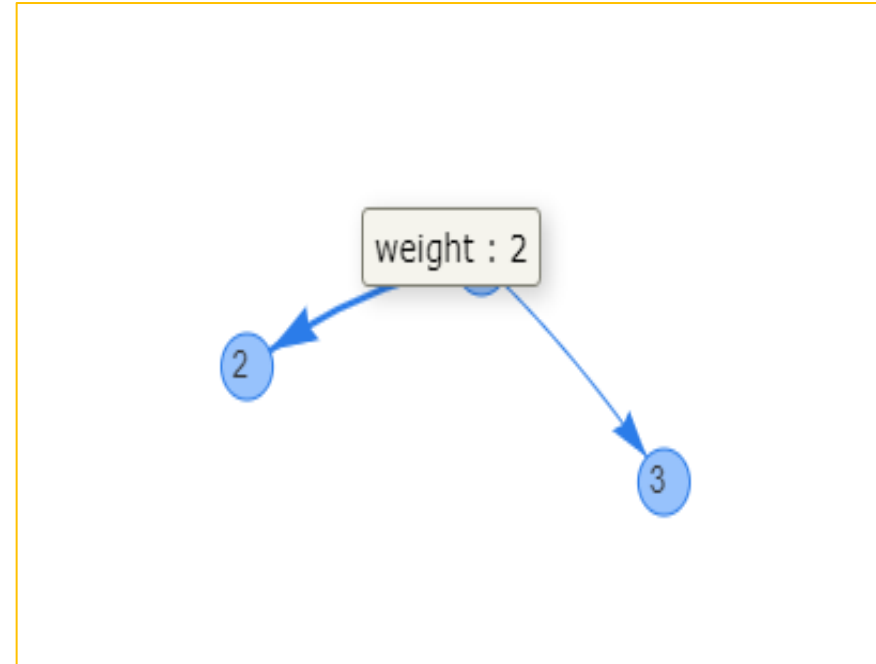
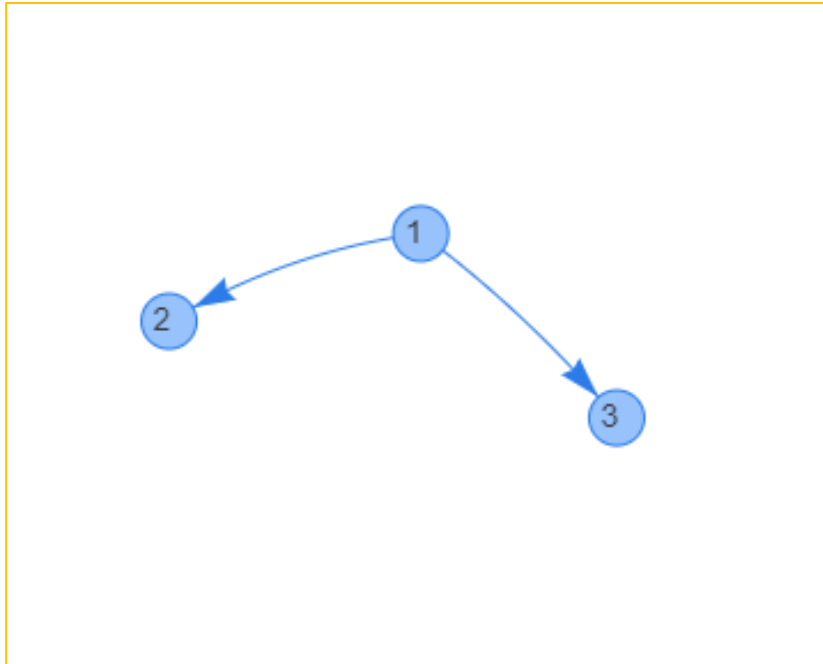


Graph Visualization

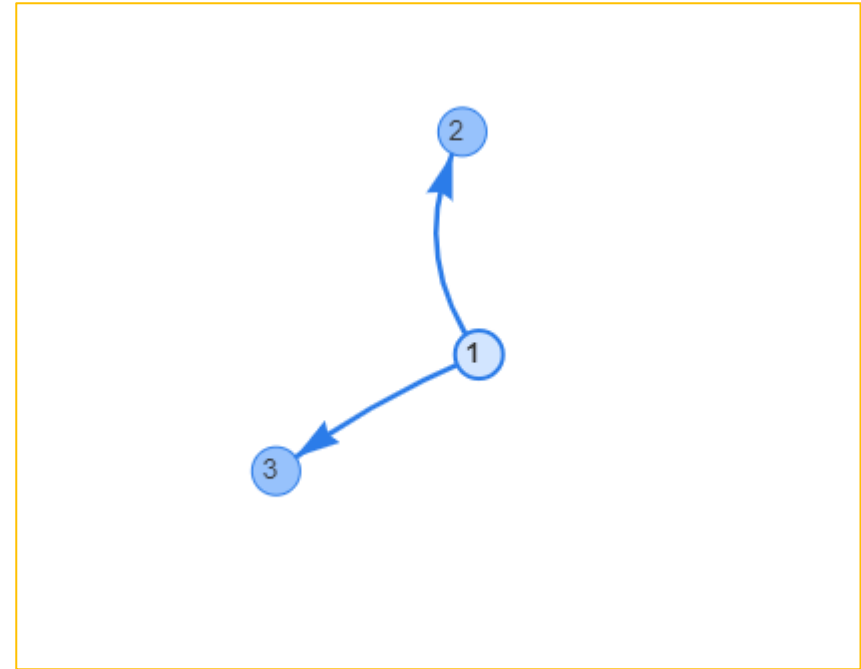
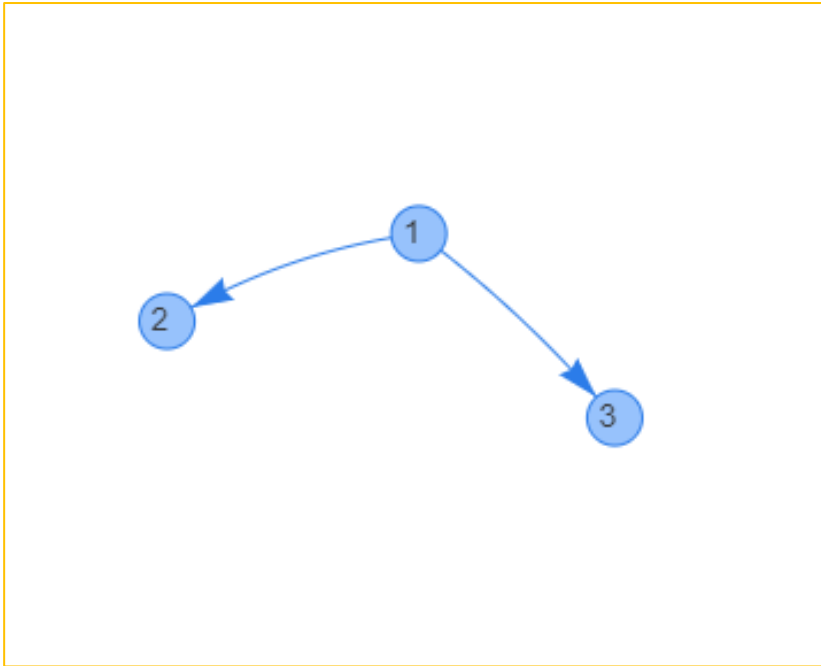
- Any Node or edge added by the user can be seen on the right hand side of the Main window



- Clicking on an edge shows its weight



- Clicking then dragging a node toggles movements in the graph to visualize graph freely



3.2

Initial & final Destinations

Choose initial node to
begin search from

INITIAL STATE

1

Choose from dropdown
menu final node(s)

FINAL STATES

Node1

☒ Node1
☐ Node2
☐ Node3
☐ Node4
☐ Node5
☐ Node6
☐ Node7
☐ Node8
☐ Node9

CHOOSE GRAPH TYPE

3.3

Algorithm Choice

Algorithm Choice

CHOOSE YOUR ALGORITHM

Breadth First Search

Breadth First Search

Depth First Search

Uniform Cost Search

Limited Depth Search

Iterative Depth Search

Greedy Search

A* Search

Choose 1 of the 7
searching algorithms
provided in this App

- In case Limited Depth is chosen, don't forget to choose a depth limit

CHOOSE DEPTH FOR LIMITED DFS

0

- Finally click Apply Algorithm

Algorithm Choice

CHOOSE YOUR ALGORITHM

Breadth First Search

CHOOSE DEPTH FOR LIMITED DFS

0

APPLY ALGORITHM



- Incase you needed to draw a new graph you can simply click CLEAR GRAPH to wipe the old graph and start a new one

Initial & Final Destinations

INITIAL STATE

1

FINAL STATES

Node1

CLEAR GRAPH

CHOOSE GRAPH TYPE

- You can also go back to Landing page to choose a graph type (directed or undirected) once again

4

Informed Algorithms

- If Greedy or A* Algorithms are chosen another window pops to allow you to enter the desired Heuristic Value for each node
- Repeat Heuristic selection for all nodes
- Final nodes' heuristic values are set to 0
- After applying algorithm, Heuristic can be seen if clicked on node

Finally click apply Algorithm to start the searching algorithm

Form ? X

Heuristic Selection

Node	H(x)
1	1

Submit

Apply Algorithm

Choose Node

Choose Heuristic

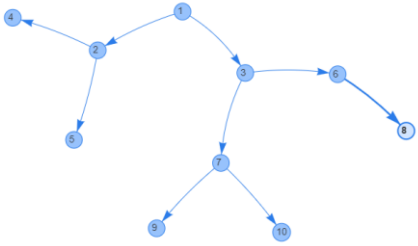
Click submit to confirm heuristic selection for a certain node

4

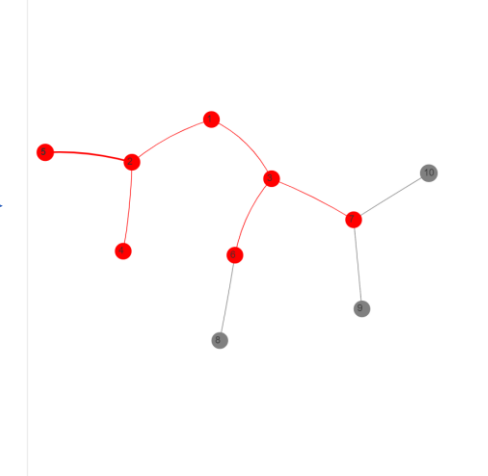
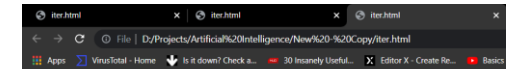
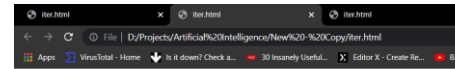
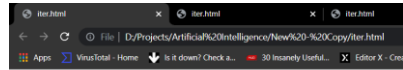
Uninformed Algorithms

- BFS , DFS and Uniform Cost Algorithms don't need extra input from user
- Limited DFS just needs a depth limit from user
- In Iterative depth Algorithm multiple html pages open automatically to show the user the iterations while the final graph is shown in the GUI normally

Main graph with node 10 as final node

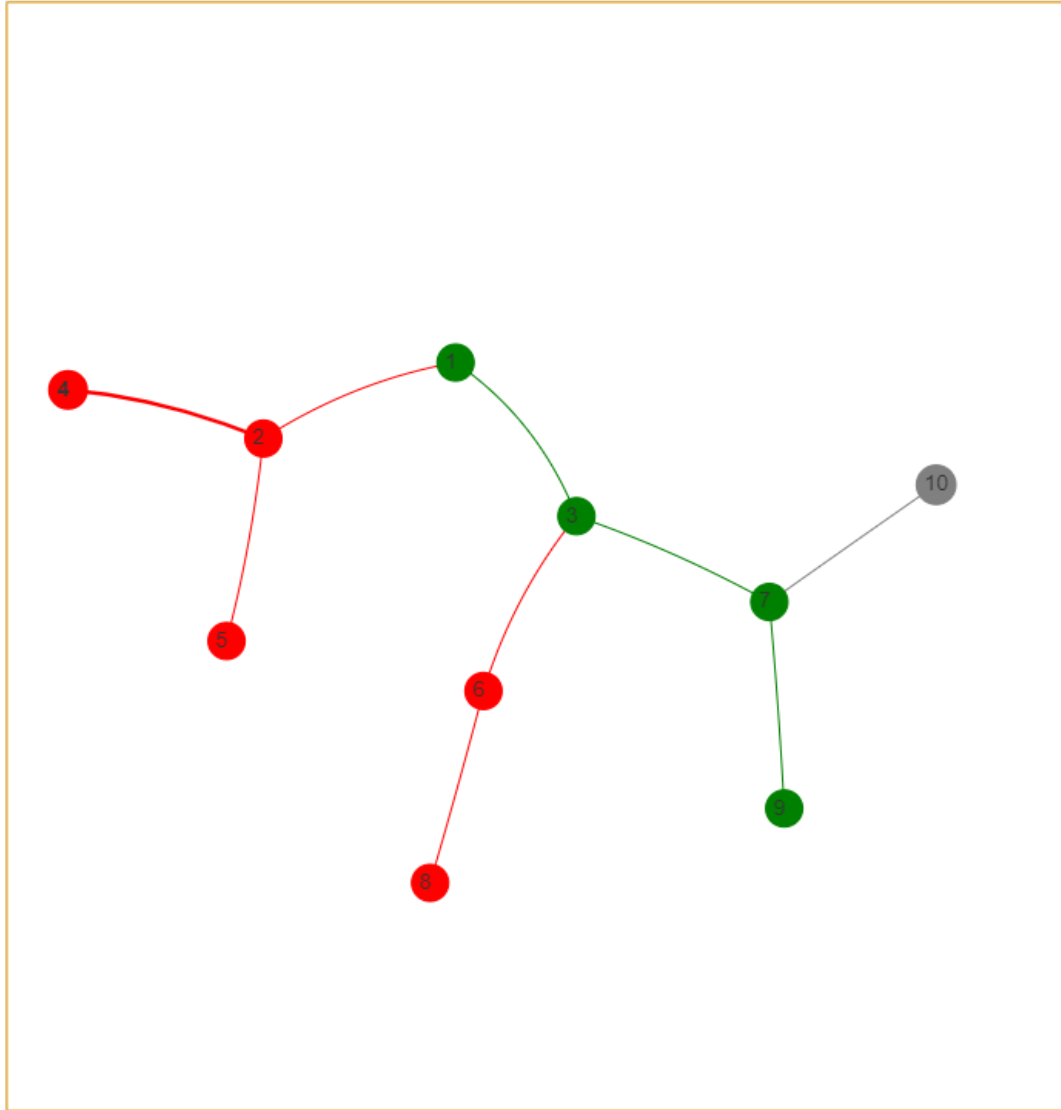


Iterations



5

Final Graph



- Green Nodes denote the solution Path
- Red nodes denote visited nodes
- Grey nodes denote nodes that were not visited



- In BFS , visiting of children happen from left to right
- In Depth related Algorithms (DFS,Limited DFS and Iterative deepening) , visiting of children starts from the rightmost child first
- In Greedy and A* , a tie is broken by using FIFO mindset which means it takes the node that was explored first