

Discussion 8

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Problem statement. Feel free to discuss one (1) of the following topics.

1. Tree traversal algorithms
2. Spanning tree
3. Minimum spanning tree
4. Depth-first search
5. Breadth-first search
6. Kruskal's algorithm
7. Prim's algorithm

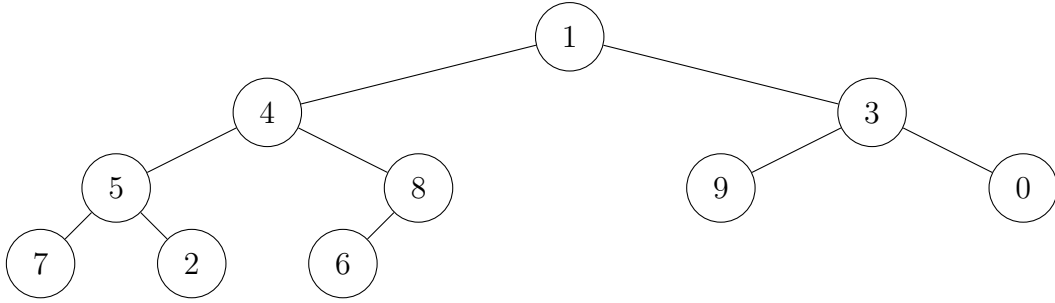
Problem 1. There are three main tree traversal algorithms: *preorder*, *inorder*, and *postorder*. These three methods are defined with “traverse” meaning recursively calling the method:

Preorder
Visit the root
Traverse the leftmost subtree
Traverse the 2nd leftmost subtree
...
Traverse the rightmost subtree

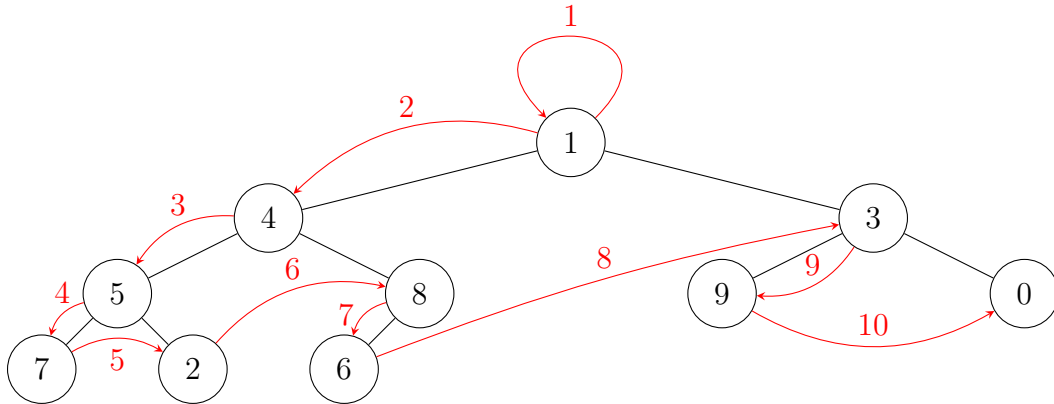
Inorder
Traverse the leftmost subtree
Visit the root
Traverse the 2nd leftmost subtree
...
Traverse the rightmost subtree

Postorder
Traverse the leftmost subtree
Traverse the 2nd leftmost subtree
...
Traverse the rightmost subtree
Visit the root

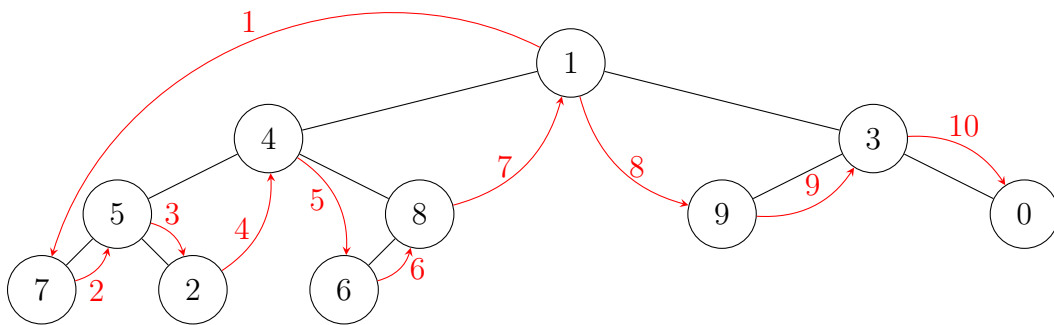
Below is a tree that will be used to illustrate the different traversal algorithms:



For preorder, the order the nodes that are visited are 1, 4, 5, 7, 2, 8, 6, 3, 9, 0



For inorder, the order the nodes that are visited are 7, 5, 2, 4, 6, 8, 1, 9, 3, 0



For postorder, the order the nodes that are visited are 7, 2, 5, 6, 8, 4, 9, 0, 3, 1

