CS140 Homework 10

Due 9.50am Tuesday Nov 3, 2020

Problem 1

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M   D   T   A   R   U   P   Q   N
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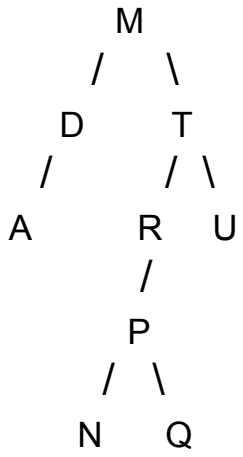
Sketch the binary tree produced by the algorithm from the bst1_handout when applied to the above data. The decision whether to go left or right is based on whether the key is strictly less than the node key being tested or not. For example, the first letter M becomes the root of the tree. Since the next letter D is less than M, it becomes a left child (subtree) of M, T becomes a right child (subtree) of M, etc. Build the tree by hand. Determine the number of nodes and leaves as well as the height of the resulting tree.

Problem 2

List the tree node keys from Problem 1 using “preorder”, “inorder” and “postorder” traversals.

1.



height: 4
nodes: 9
leaves: 4

2.

Inorder traversal : A D M N P Q R T U

preorder traversal : M D A T R P N Q U

postorder traversal : A D N Q P R U T M