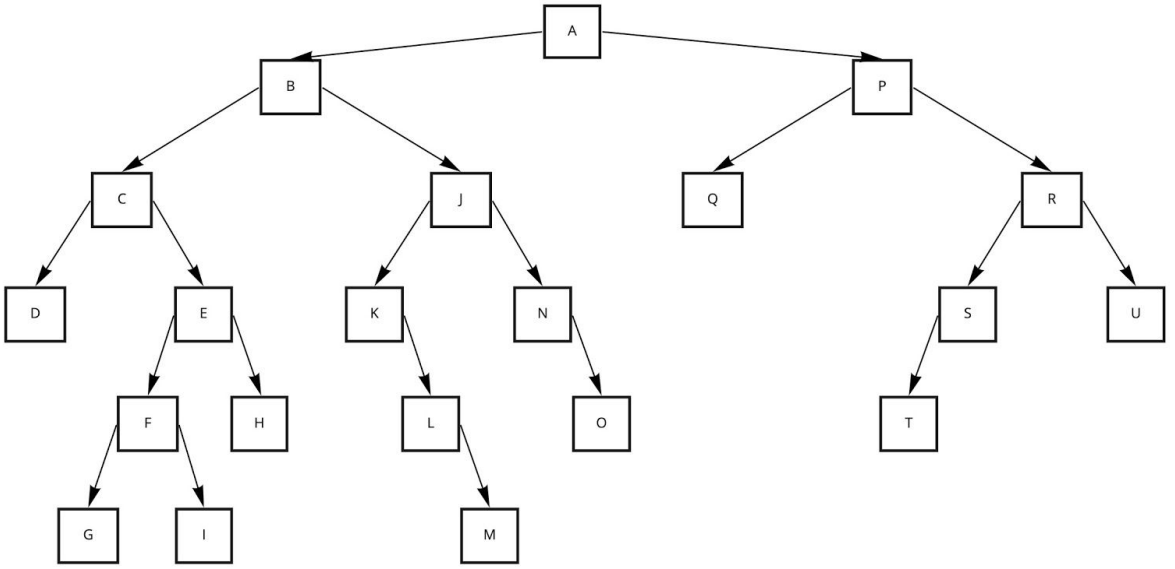
Code Reading: Recursive Binary Trees

Question 1



Question 2

The height method works by setting the bae case to return 1. This is the case when neither the left nor right child has a value, i.e. the root is a leaf.

The recursive case then occurs when either the left or right child has a node. If the leftChild is null we return 1 plus the result of calling height() on the rightChild. If the rightChild is null we return 1 plus the result of calling height() on the leftChild. Otherwise we add 1 to the whichever child has the larger height up until that point. This allows us to get the height by recursively calling the method and adding 1 each time a new level of the tree is reached.

Question 3

The leafData method works by setting the base case to check if the current tree is a leaf. If that is the case then the data is added to the result ArrayList.

The recursive case then checks both the left and right nodes and if they are not equal to null then the recursive method is called to find the leaf for the leftChild and rightChild and add the data of the leaf to the result. This result is then returned so that the ArrayList grows with each call of the leafData method.