

Marinel Tinnirello

12/9/2019

CMPT 435 - Assignment #12

1)

a) (In-Order Traversal)

Let count = 0, kSmall = min value, current = root node

Loop while current isn't null

    If the current left isn't null, increment

        If the count is equal to k, save into kSmall

        Set current to right

    Else

        Let prev = current node left

        If prev right is null, set prev to right, set current to null

        Else

            Set prev right to null

            Increment count

            If count is k, set small to current data

            Set current to current right

Return kSmall

```
b) while ( current != null )                // n
    if ( current.left != null )              // 1
        count++                             // 1
        if ( count == k ) { Output: kSmall = current.data } // 1
        current = current.right              // 1
    else
        while ( prev.right != && prev.right != current ) // 1
            { Output: prev = prev.right }
        If ( prev.right == null )             // 1
            prev.right = current              // 1
            current = prev.left               // 1
        else
            prev.right = null                 // 1
            count++                           // 1
        if ( count == k ) { Output: kSmall = current.data } // 1
        current = current.right              // 1
```

c)  $O(n) = n$