



# Challenge 5: Find Nodes at "k" distance from the Root

If you are given the root to a Binary Search Tree and a value "k", can you write a code to find the nodes at "k" distance from the root? A solution is placed in the "solution" section for your help, but we would suggest you to solve it on your own first.

## We'll cover the following



- Problem Statement
  - Output
  - Sample Input
    - Sample Output
- Coding Exercise

## Problem Statement#

Implement a function `findKNodes(root,k)` which finds and returns nodes at `k` distance from the root in the given binary tree. An illustration is also provided for your understanding.

## Output#

Returns all nodes in a list format which are at `k` distance from the root node

## Sample Input#

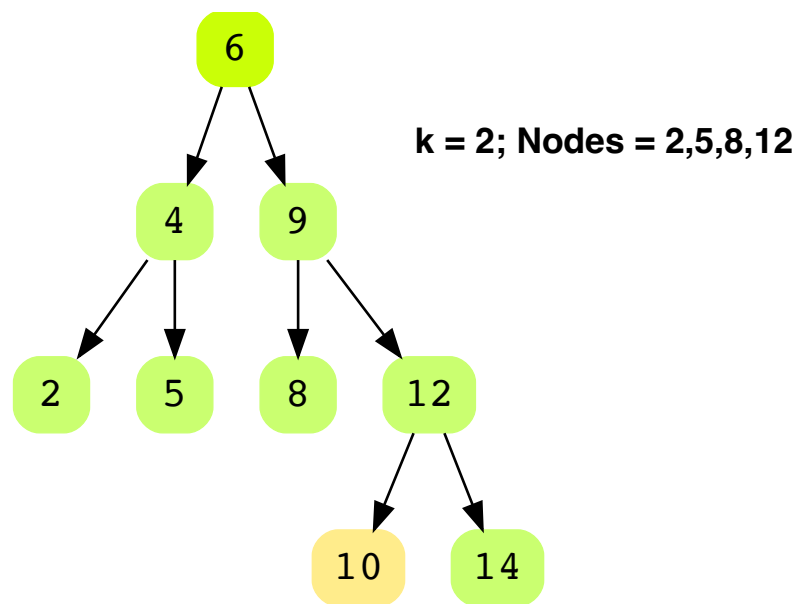


```
bst = {  
    6 -> 4,9  
    4 -> 2,5  
    9 -> 8,12  
    12 -> 10,14  
}  
where parent -> leftChild,rightChild  
k = 2
```



## Sample Output#

[2,5,8,12]



## Coding Exercise #

Take a close look and design a step-by-step algorithm first before jumping onto the implementation. This problem is designed for your practice, so try to solve it on your own first. If you get stuck, you can always refer to the solution provided in the solution section. Good Luck!



main.py

BinarySearchTree.py

Node.py

```
from Node import Node
from BinarySearchTree import BinarySearchTree

def findKNodes(root, k):
    # Write your code here
    q = []
    q.append(root)
    height = 0
    while q:
        elements_in_curr_height = len(q)
        if height == k:
            return [node.val for node in q]

        for i in range(0, elements_in_curr_height):
            curr = q.pop(0)
            if curr.leftChild:
                q.append(curr.leftChild)
            if curr.rightChild:
                q.append(curr.rightChild)
        height += 1
```



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Solution Review: Find the Height of a ...

Solution Review: Find Nodes at "k" di...

✓ Completed



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