```
class Node<K, V> {
    K key;
    V value;
    Node<K, V> left, right;
}

class BSTMap<K,V> implements OrderedDefaultMap<K,V>{

Node<K, V> root;
int size;
Comparator<K> comparator;

...

Node<K, V> set(Node<K, V> node, K key, V value) {
    if (node == null) {
        this.size += 1;
        return new Node<K, V>(key, value, null, null);
    }
    int comp = this.comparator.compare(node.key, key);
    if (comp < 0) {
        node.right = this.set(node.right, key, value);
        return node;
    } else if (comp > 0) {
        node.left = this.set(node.left, key, value);
        return node;
    } else {
        node.value = value;
        return node;
    }
}

@Override
public void set(K key, V value) {
    if (key == null) {
        throw new IllegalArgumentException();
    }
    this.root = this.set(this.root, key, value);
}

}
```

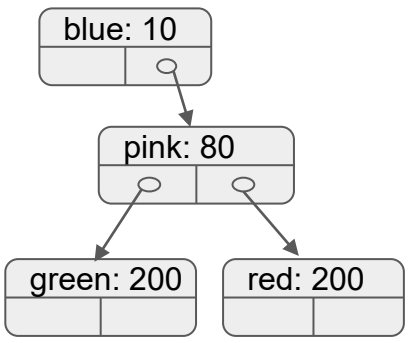
@A	BSTMap root = @B size = 4 comparator = String::compare
@B	Node key = "blue" value = 10 left = null right = @C
@C	Node key = "pink" value = 80 left = @D right = @E
@D	Node key = "green" value = 200 left = null right = null
@E	Node key = "red" value = 200 left = null right = null

Based on set() above, what order should we add elements to an empty tree to get the below?

A: blue, green, pink, red
B: blue, pink, green, red
C: blue, pink, red, green
D: red, pink, green, blue
E: More than one of these works

@A.set("orange", 5)

this.root = ...



Definition: A **binary search tree (BST)** is a tree where at **every** node, all keys to the **left** of that node are **smaller** than that key, and all keys to the **right** are larger.

```
class Node<K, V> {
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int height() {


}

















void printAllElements() {


}









}
```

Definition: the **height** of a tree is the number of nodes on the **longest** path from the root to the bottom (or to a **leaf**).

The example on the front has height **3**. After we add "orange" it has height **4**.

Consider adding "blue", "pink", "orange", "red", "green", "gray", and "yellow" to an empty tree. What is the **smallest** and **largest** height possible? [Which order gives these results?]

A: smallest: 4, largest: 6
B: smallest: 3, largest: 7
C: smallest: 4, largest: 7
D: smallest: 2, largest: 7
E: smallest: 3, largest: 6