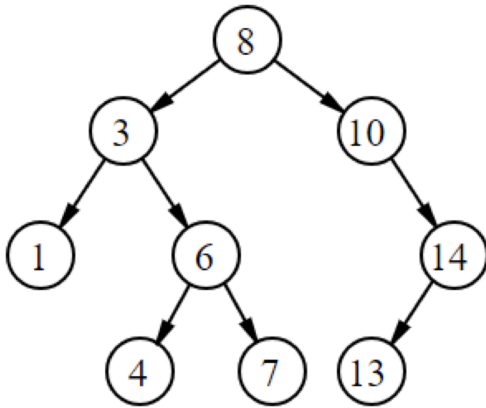**CS62: Spring 2025 | Lecture #17 (Binary Search Trees) worksheet | Jingyi Li**

1. Find 4 and 9 on this BST. Draw the route it takes.

2. Fill in the blanks for the insert helper.

```java
//insert creates new node or updates existing node
public void insert(Key key, Value val) { //recursive implementation
    root = insert(root, key, val);
}

// helper (@returns root of subtree at x)
// note Node constructor is Node(key, value, size)
private Node insert(Node x, Key key, Value val) {
    //base case: if empty, return a new node of size 1
    _____

        _____

    int cmp = key.compareTo(x.key);
    if (cmp < 0)
        x.left = _____ //recursive call
    else if (cmp > 0)
        x.right = _____ //recursive call
    else
        _____ //update existing node's value
    x.size = _____; //update size
    return x;
}
```

3. Delete the node 21 in this BST. Choose the successor.