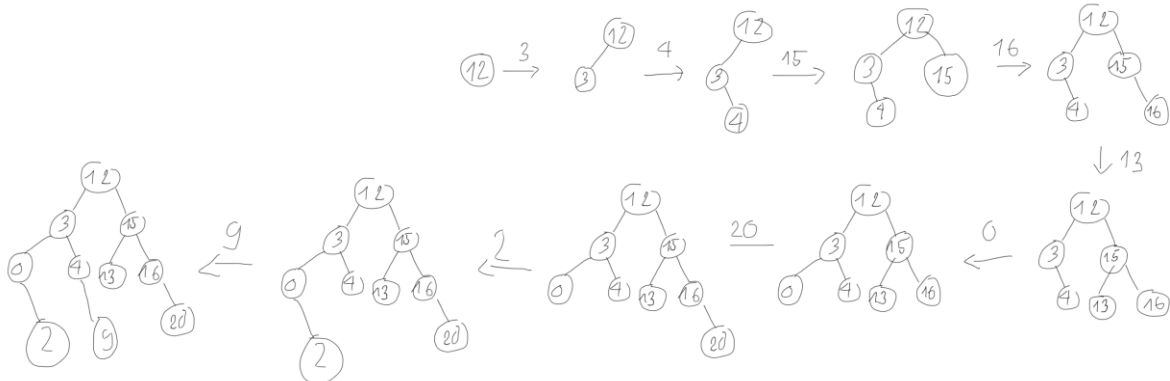


Exercise 4: Random list [12, 3, 4, 15, 16, 13, 0, 20, 2, 9]

a) Draw the binary search tree



- b) Write out the procedure to find and remove the maximum element from binary search tree in detail
- c) Write out the procedure to find and remove the minimum element from binary search tree in detail

```
// find the maximum element
int getMax(Node *root) {
    if(root->right == nullptr) return root->data;
    return getMax(root->right);
}

//find the minimum element
int getMin(Node *root) {
    if(root->left == nullptr) return root->data;
    return getMin(root->left);
}

// remove Node have value
void removeNode(int value) {
    if(root == nullptr) return;
    if(root->data == value) {
        if(root->left == nullptr && root->right == nullptr) {
            delete root;
            root = nullptr;
        } else if(root->left == nullptr) {
            Node *temp = root;
            root = root->right;
            delete temp;
        } else if(root->right == nullptr) {
            Node *temp = root;
            root = root->left;
            delete temp;
        } else {
            int x = getMax(root->left);

```

```
        root->data = x;
        removeNode(x, root->left);
    }
} else if(root->data > value) {
    removeNode(value, root->left);
} else {
    removeNode(value, root->right);
}
}
```

```
// solve for b)
int maxNode = getMax(root);
removeNode(maxNode);
```

```
// solve for c)
int minNode = getMin(root);
removeNode(minNode);
```