Step-by-Step Tree Construction

This document provides a step-by-step view of the binary search tree (BST) construction process. Each step illustrates the tree's state after a new node is inserted.

Algorithm for Tree Construction

The binary search tree was constructed using the following steps:

1. **Empty Tree Initialization:** Begin with an empty tree.

2. **Node Insertion:** For each node insertion:

   - Start at the root and compare the new node's value with the current node.
   - Move left if the new value is smaller, or right if it is larger.
   - Insert the new node into the first available position that maintains the BST property.

3. **Recursive Traversal:** Insert nodes recursively to ensure that each node's left subtree contains values less than the node and the right subtree contains values greater.

Step-by-Step Visualization

The following figures show the BST after each insertion step. Each step highlights the newly added node in pink to indicate the changes made.
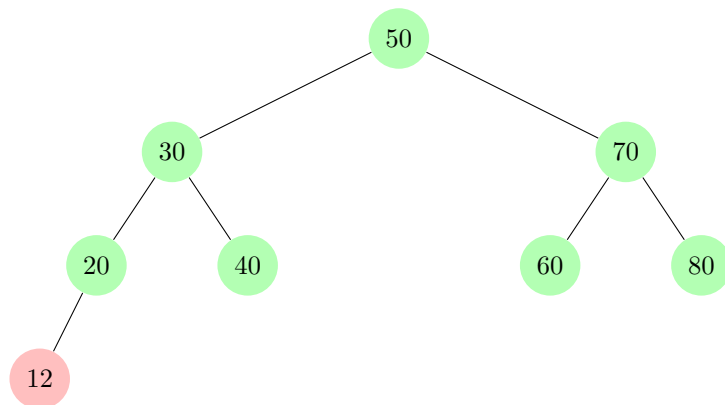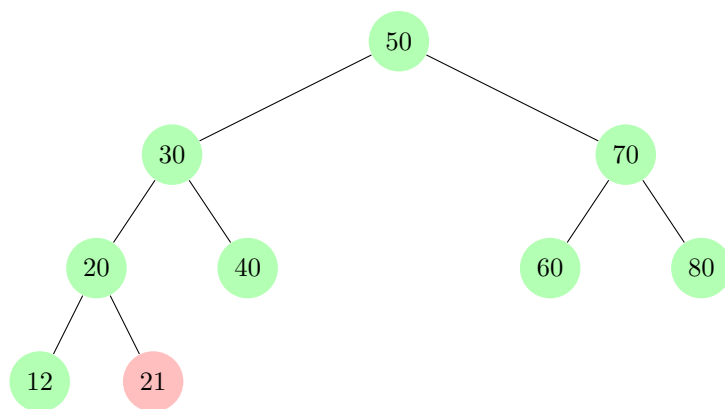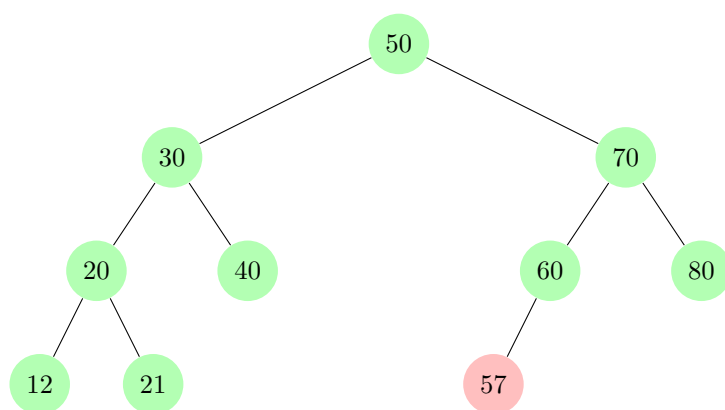
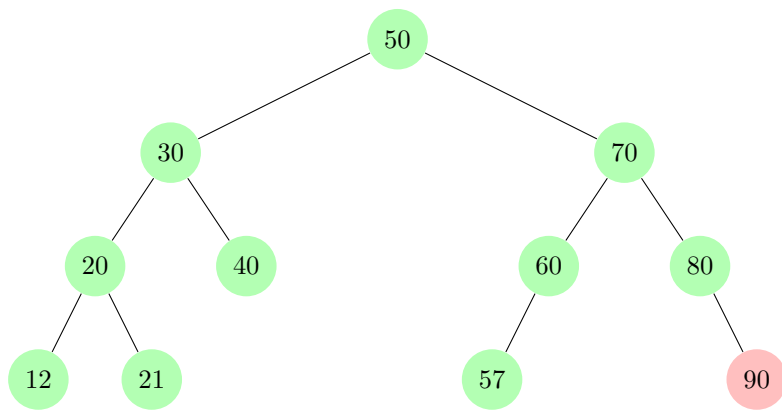Figure 1: Step 1

Figure 2: Step 2

Figure 3: Step 3

Figure 4: Step 4