

Binary Search Tree

In this lesson, we'll study binary search trees.

We'll cover the following ^

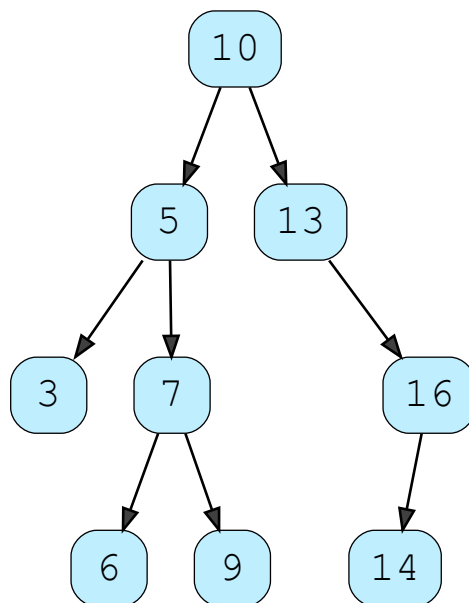
- Structure
- Representation
- Height
- Properties

Structure

A binary search tree is a node-based binary tree data structure.

For every node:

- The left subtree of a node contains only nodes with smaller keys.
- The right subtree of a node contains only nodes with larger keys.



Representation

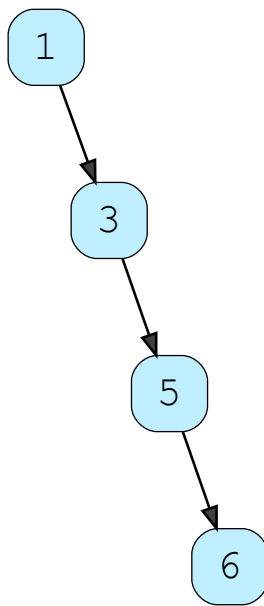
Each node a value (*key*) and two pointers (*left*, *right*).

```
struct Node {  
    int val;  
    Node *left, *right;  
}
```



Height

In the worst case, the height of the tree can be N . This is called a **skewed** tree.



Properties

- Binary Tree
- All keys in the left subtree of X is $< X$
- All keys in the right subtree of X is $> X$
- Height is $O(N)$

In the next lesson, we'll see how to search a key in a Binary search tree.