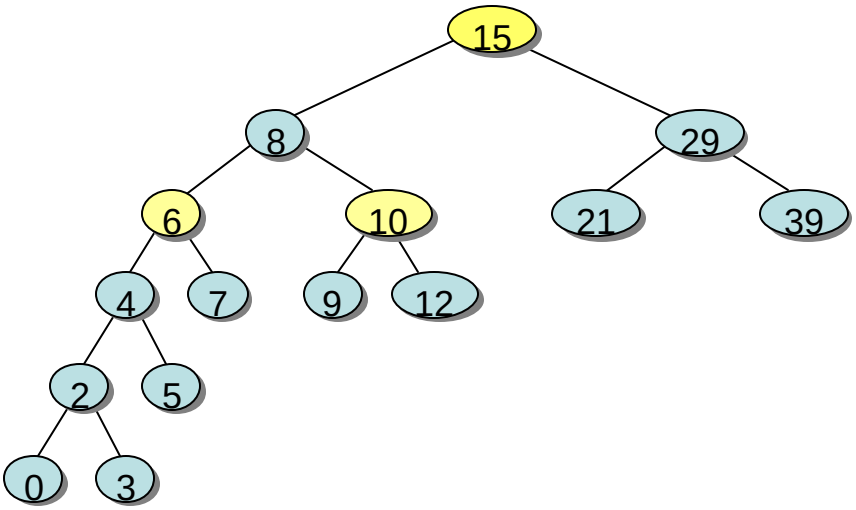
INFSCI 2610 Data Structures
Homework 5, Due, Monday April 5



Question 1: Consider the above Search Tree.

1. Bring node with key value = 10 to the root (show each transformations steps)
    a. By applying basic BST transformation
    b. By applying the Splay tree transformation.
2. Bring node with key value = 6 to the root (show the transformations)
    a. By applying basic BST transformation
    b. By applying the Splay tree transformation.
3. In 1 and 2, compare the balancing achieved by the two methods

Question 2: Consider the input:

T H I S I S A N E A S Y T R E E QU E S T I O N

1. Construct a 2-3-4 tree for the following input (show the tree after each step)
2. Delete the following from the tree Q R H (in sequence) and show the trees obtained

Question 3: Again consider the input:

T H I S I S A N E A S Y T R E E Q U E S T I O N

Consider K = 0..25 corresponding to the 26 characters; assume that A = 0, B = 1, and so on.

Show how the characters will be stored in the hash table using $h(K) = K \bmod M$ using the following :

1. Separate chaining method with table size M = 7.
2. Simple linear probing with table size M = 28.