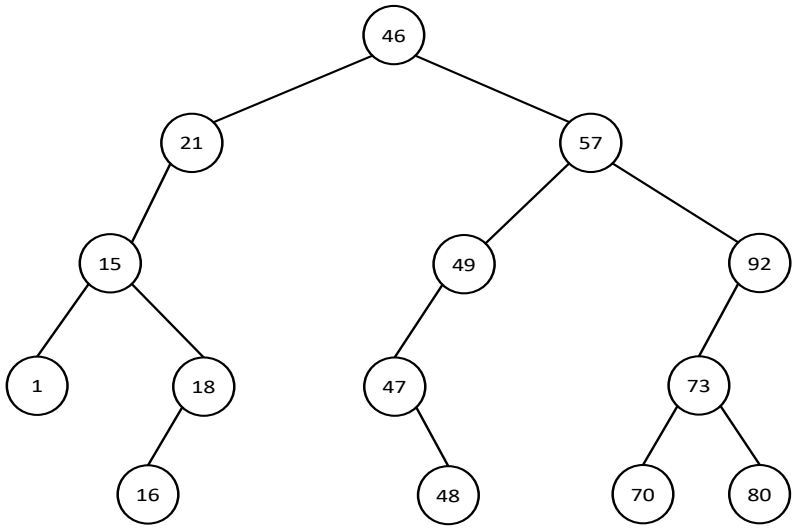
Module IN2002—Data Structures and Algorithms
Sample Answers to Exercise Sheet 8

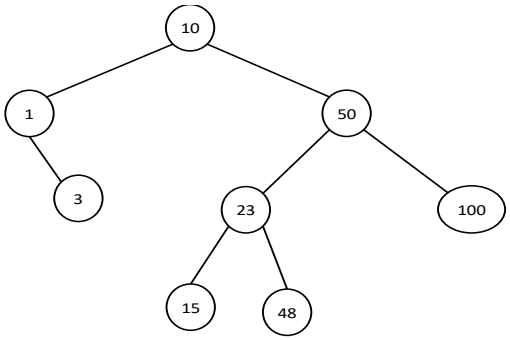
1. Is this an AVL balanced tree? Justify your answer.



- This tree is not AVL-balanced. Although the root is AVL balanced (both sides have the same depth), the same cannot be said of all nodes (see 21, 49 and 92).

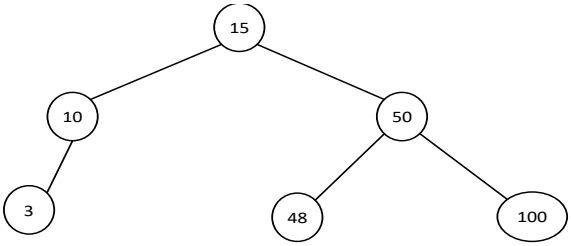
2. Create an AVL balanced tree while inserting the values in this order: 1, 10, 100, 3, 50, 15, 23, and 48.

- This is the final tree

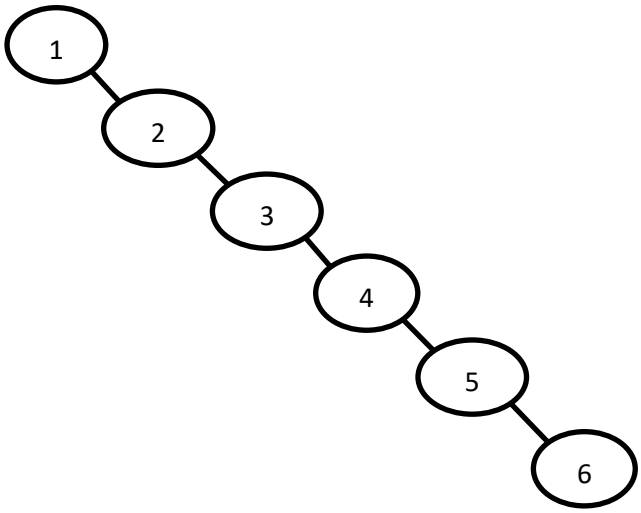


3. Delete the nodes 1 then 23 from the resulting tree above.

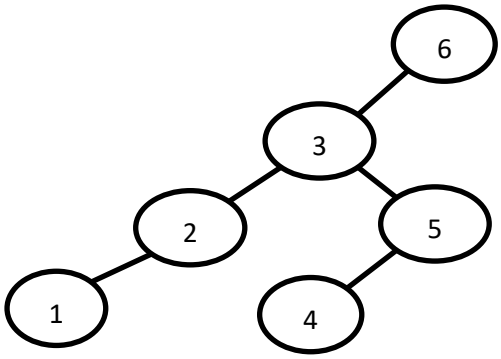
- This is the final tree



4. Show the splay tree that results from accessing the keys: 3 and then 6 on the tree below.

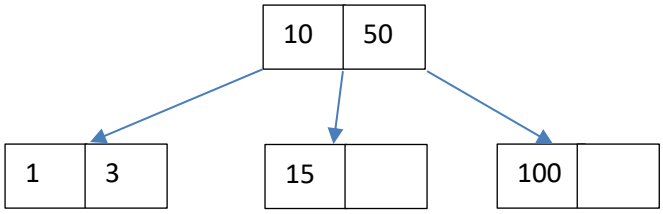


- This is the final tree



5. Create a B-Tree of order 3 with the keys: 1, 10, 100, 3, 50, 15 (in that order).

- This is the final tree


10
50
1
3
15
100