



AVL Trees: Examples

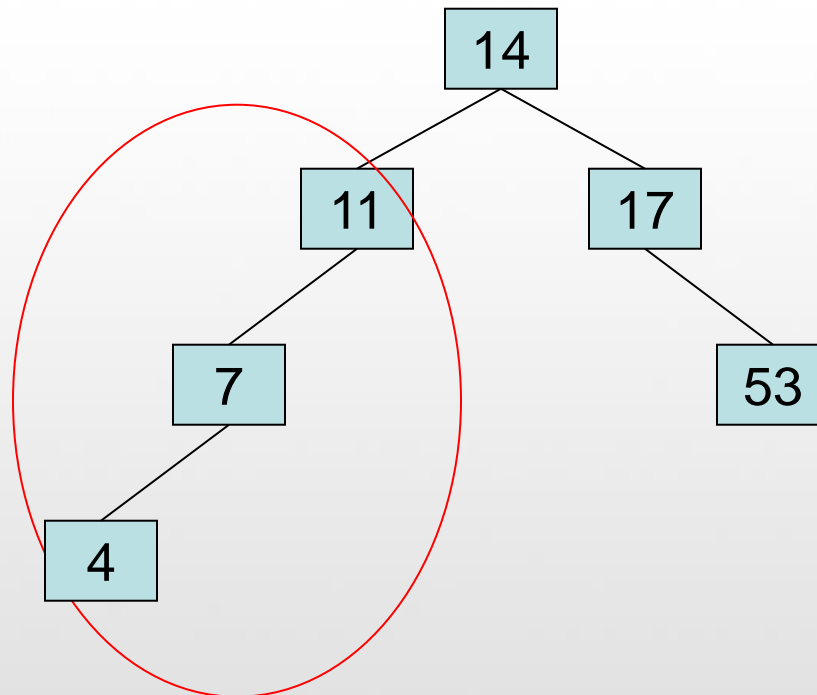
Dr. Abdallah Karakra

Computer Science Department

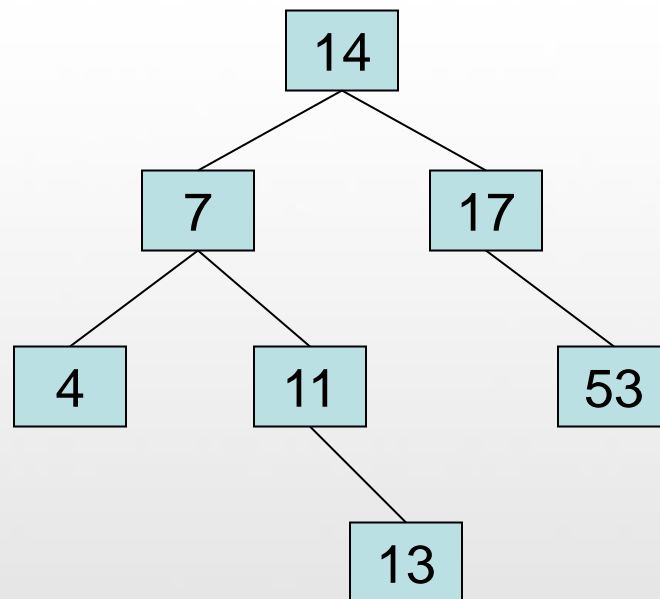
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AVL Tree Example 1

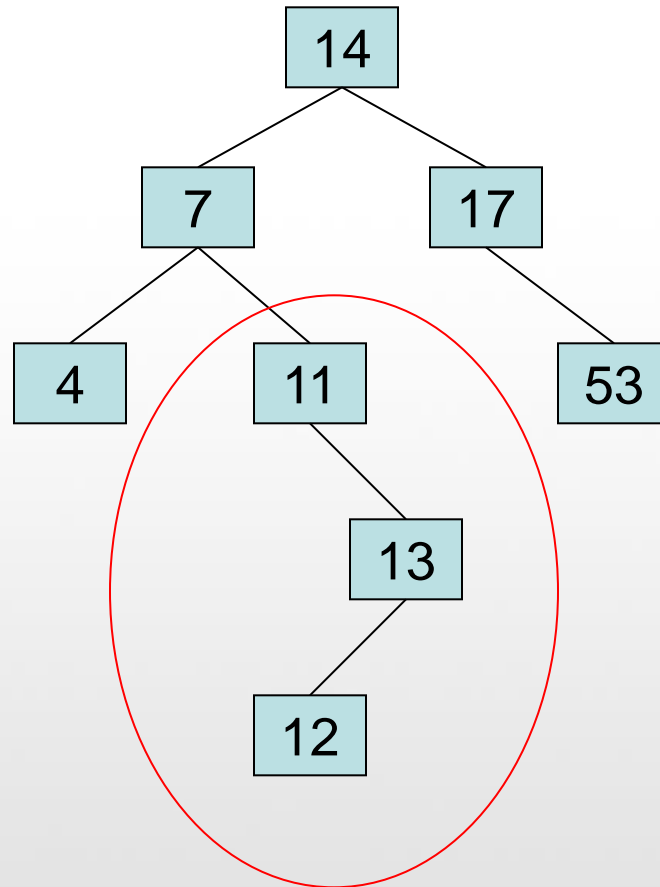
Insert 14, 17, 11, 7, 53, 4, 13 into an empty AVL tree



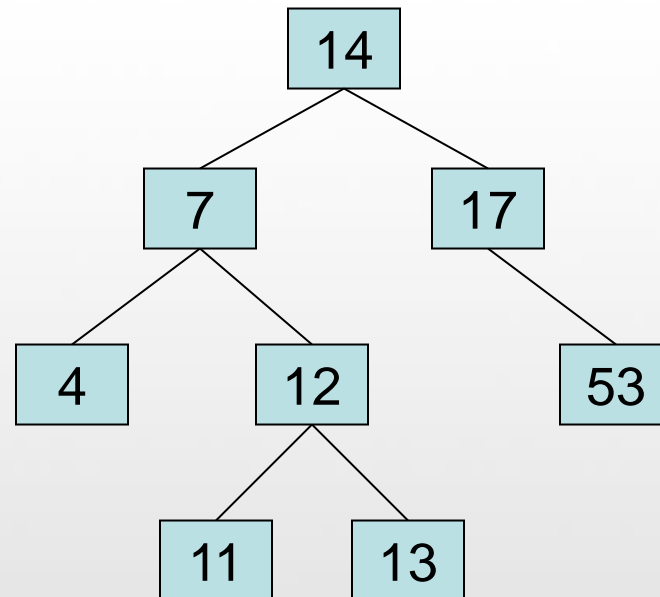
❑ Insert 14, 17, 11, 7, 53, 4, 13 into an empty AVL tree



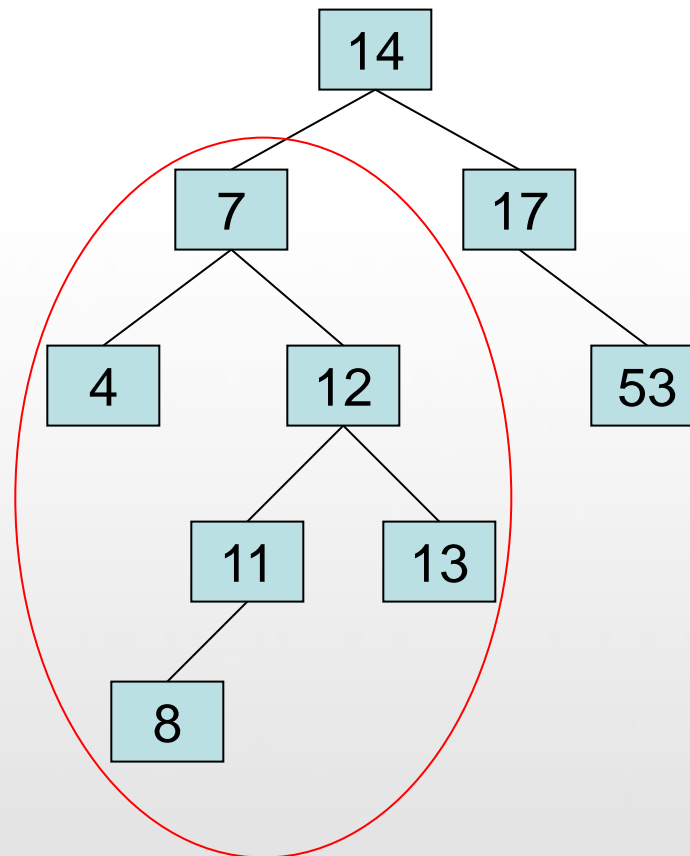
❑ Now insert 12



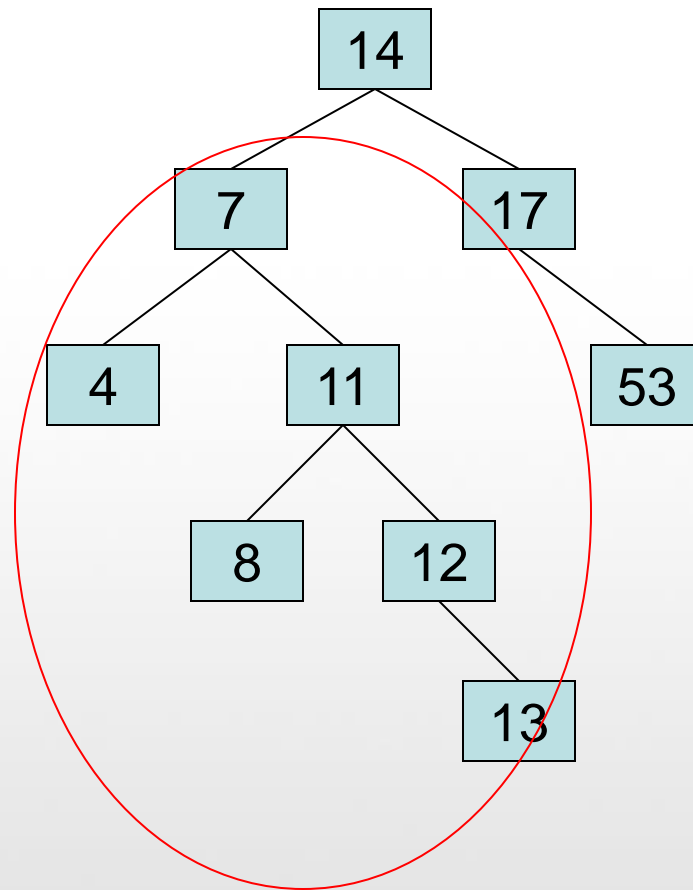
❑ Now the AVL tree is balanced.



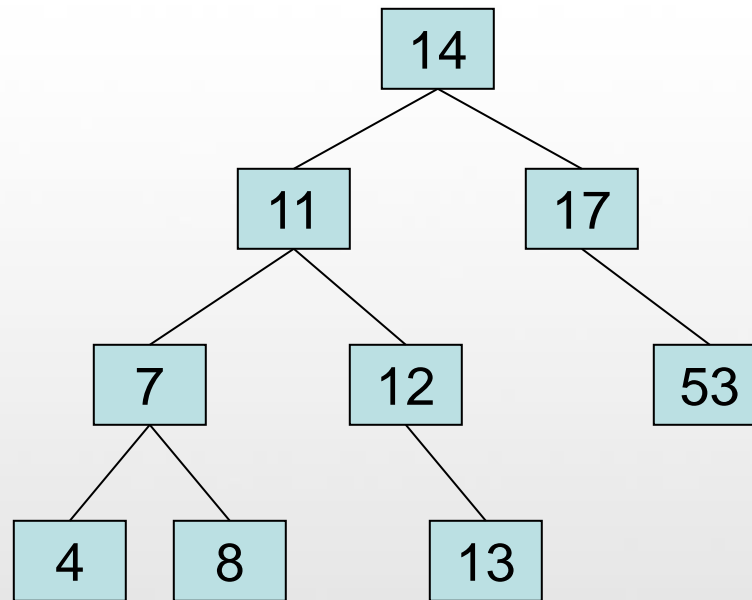
□ Now insert 8



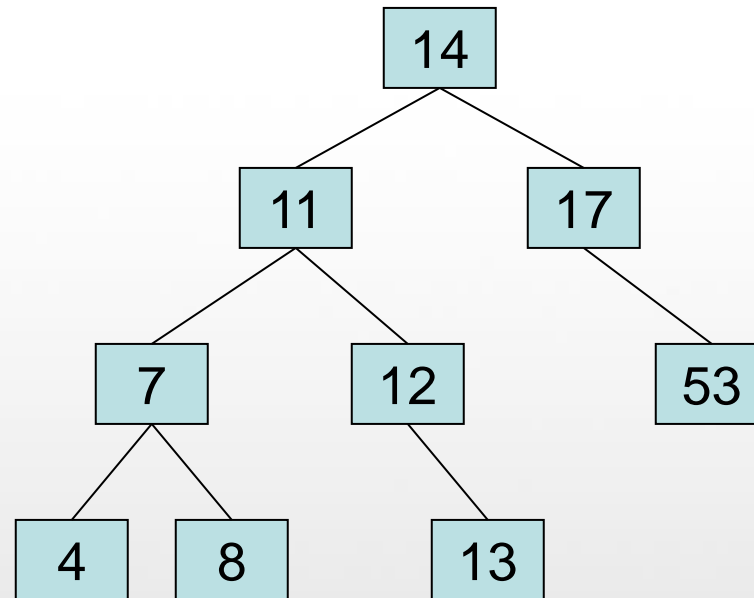
❑ Now insert 8



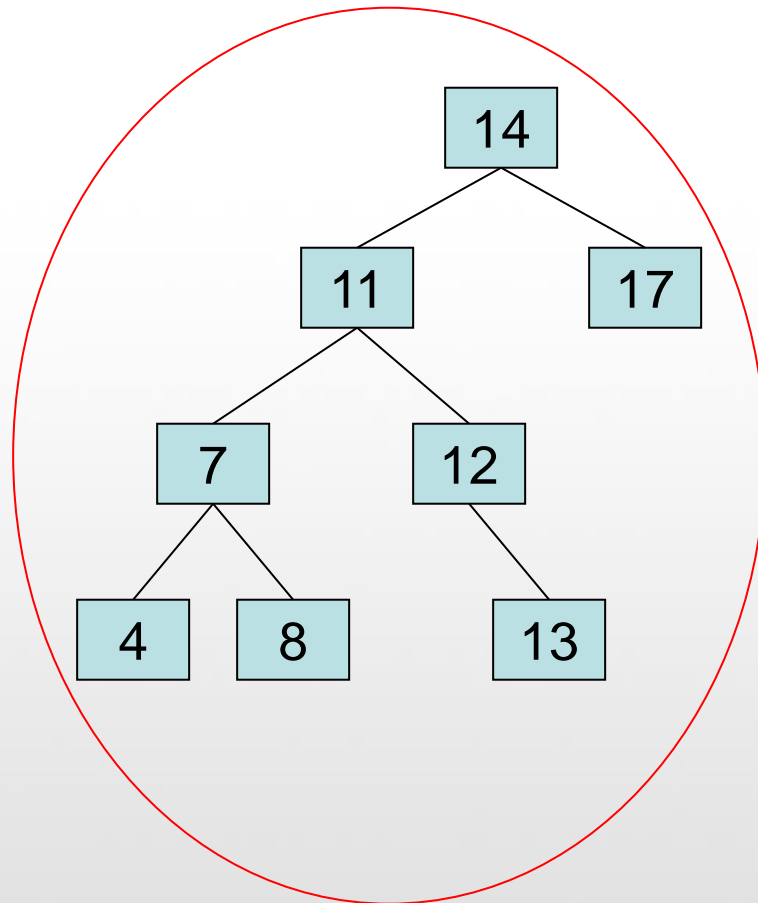
❑ Now the AVL tree is balanced.



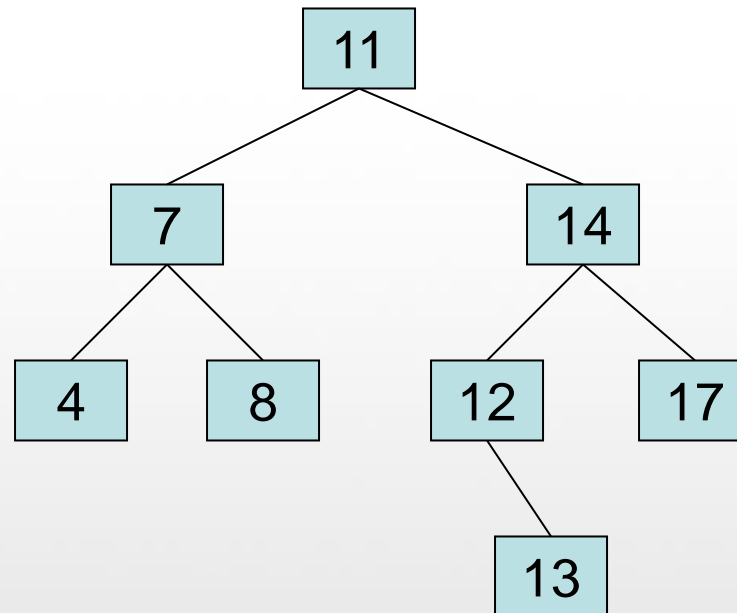
❑ Now remove 53



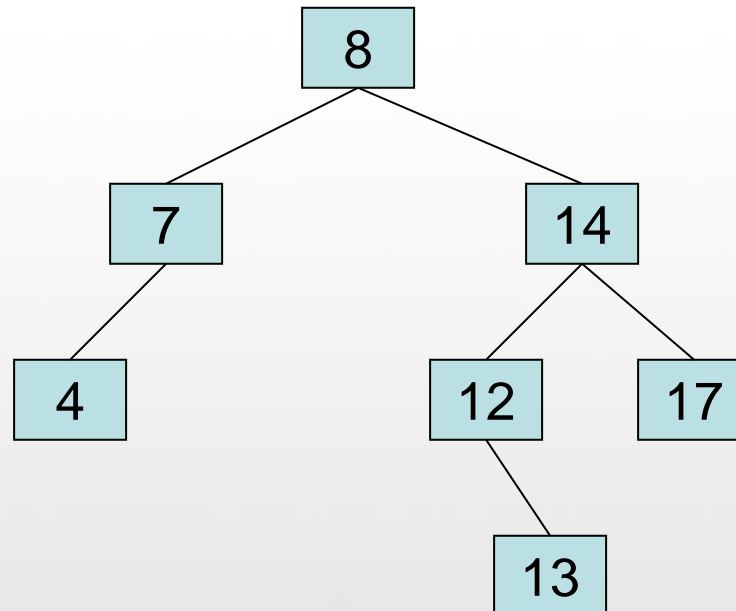
❑ Now remove 53, unbalanced



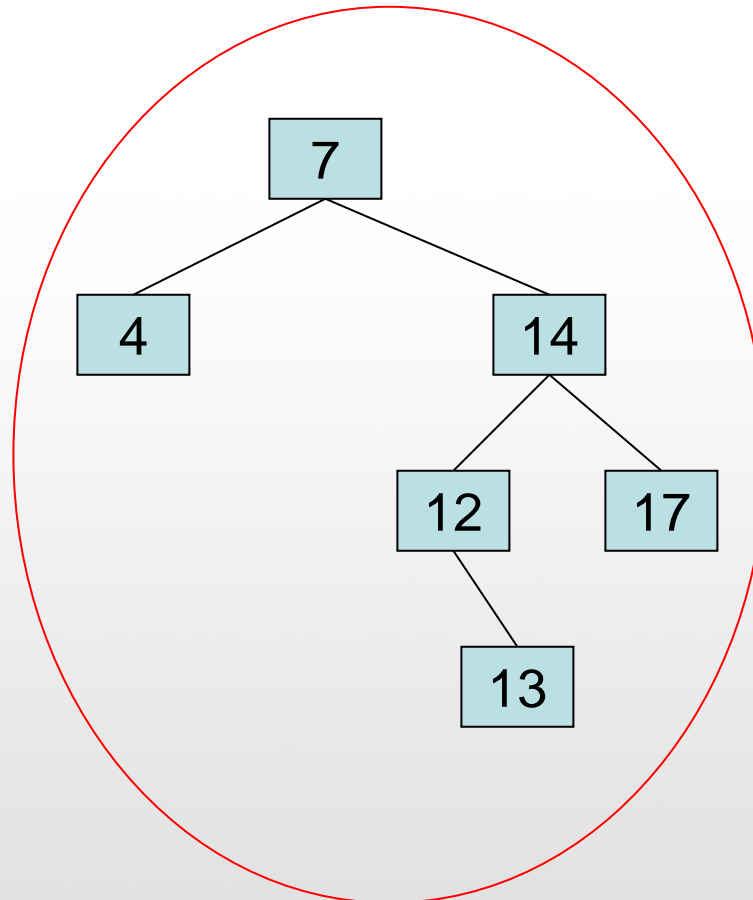
☐ **Balanced!** **Remove 11**



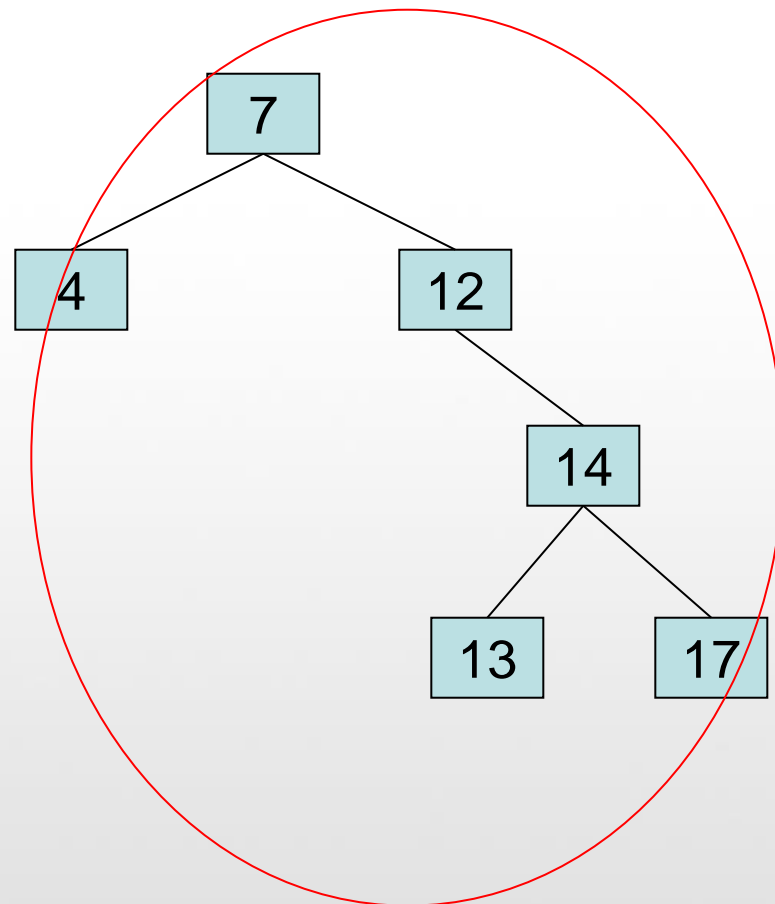
- ❑ Remove 11, replace it with the largest in its left branch



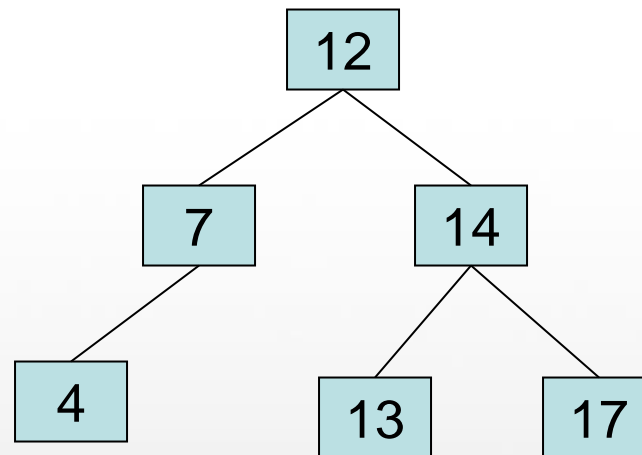
❑ Remove 8, unbalanced



❑ Remove 8, unbalanced



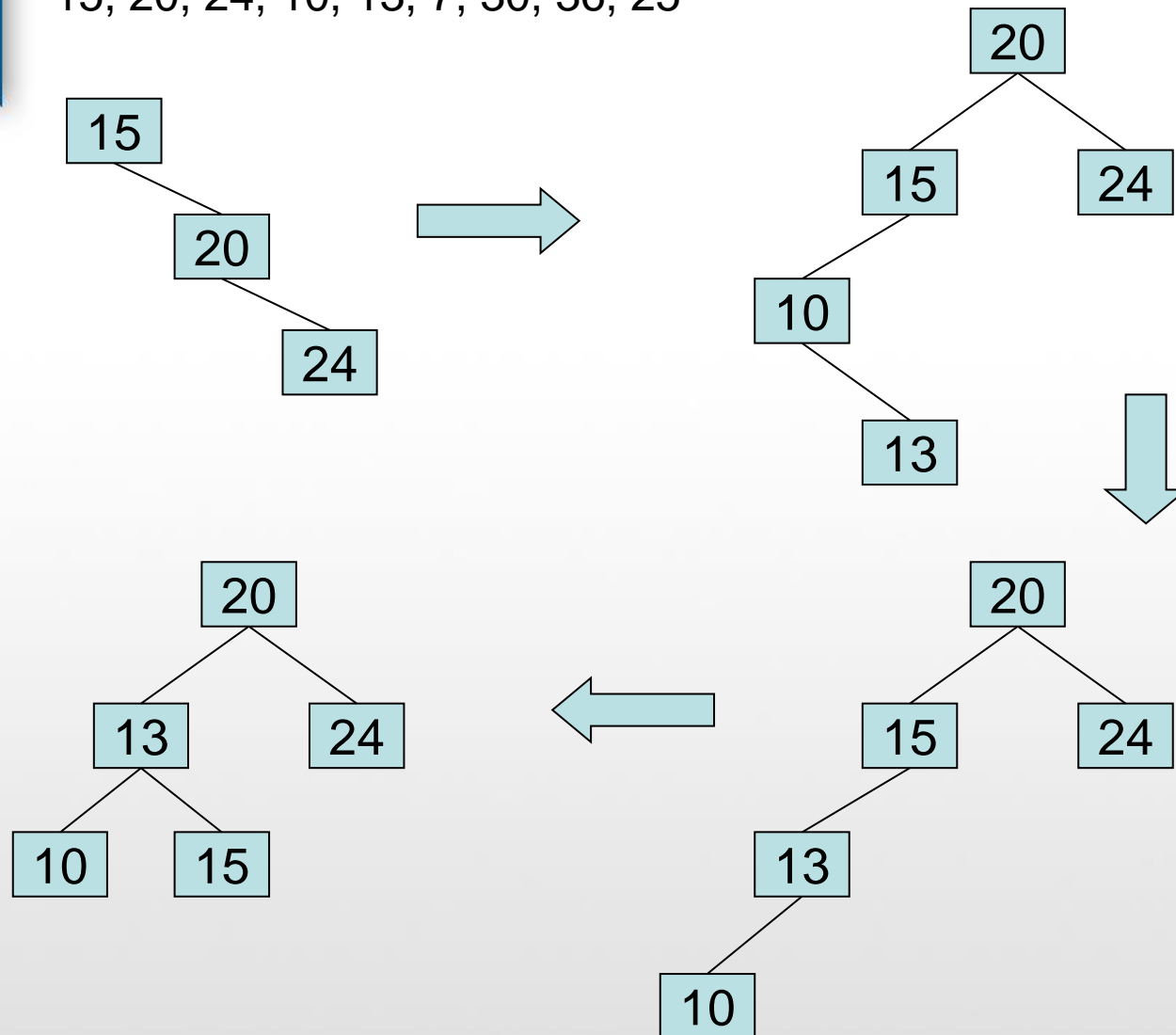
❑ **Balanced!!**



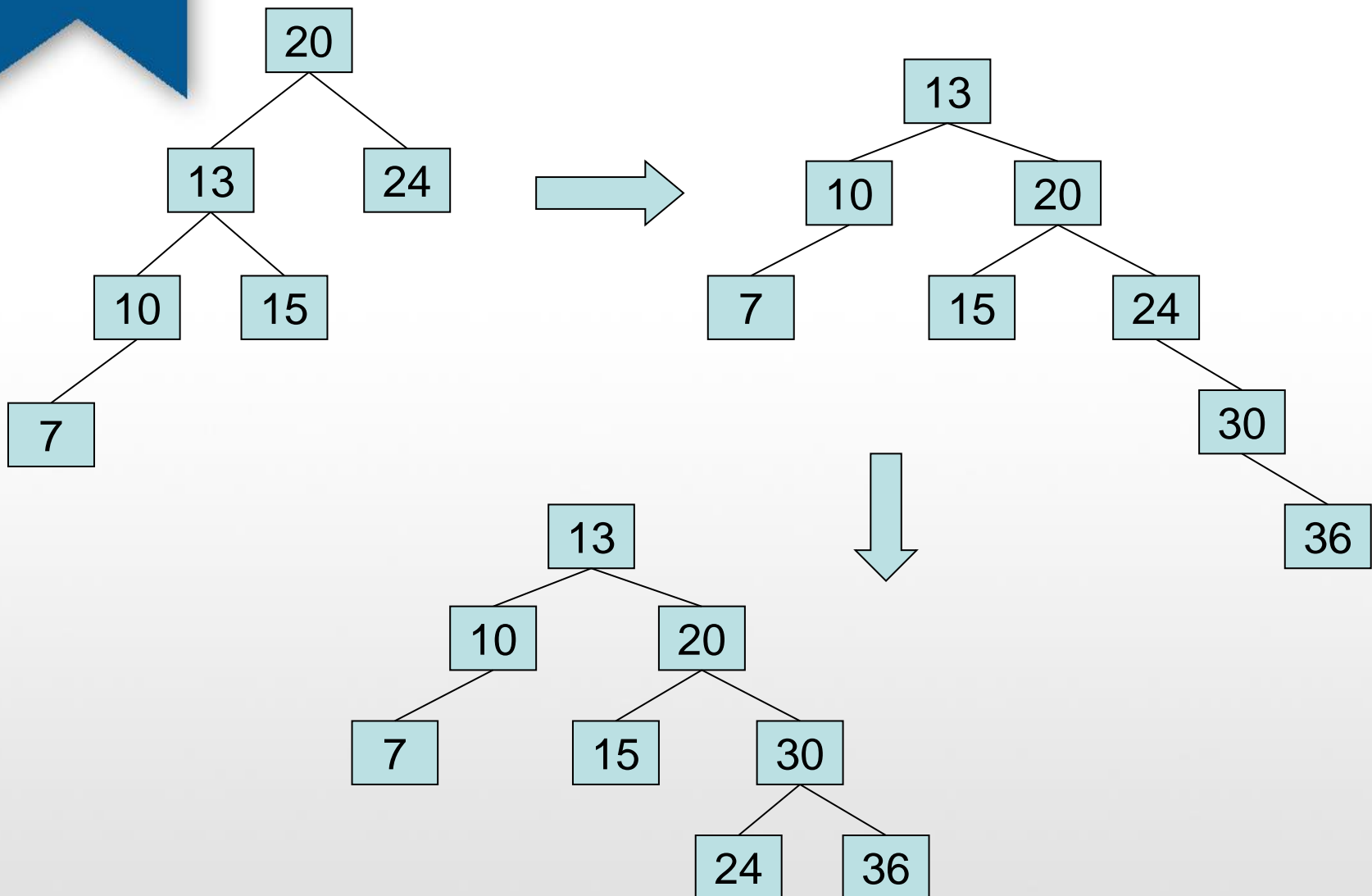
AVL Tree Example 2

- Build an AVL tree with the following values:
15, 20, 24, 10, 13, 7, 30, 36, 25

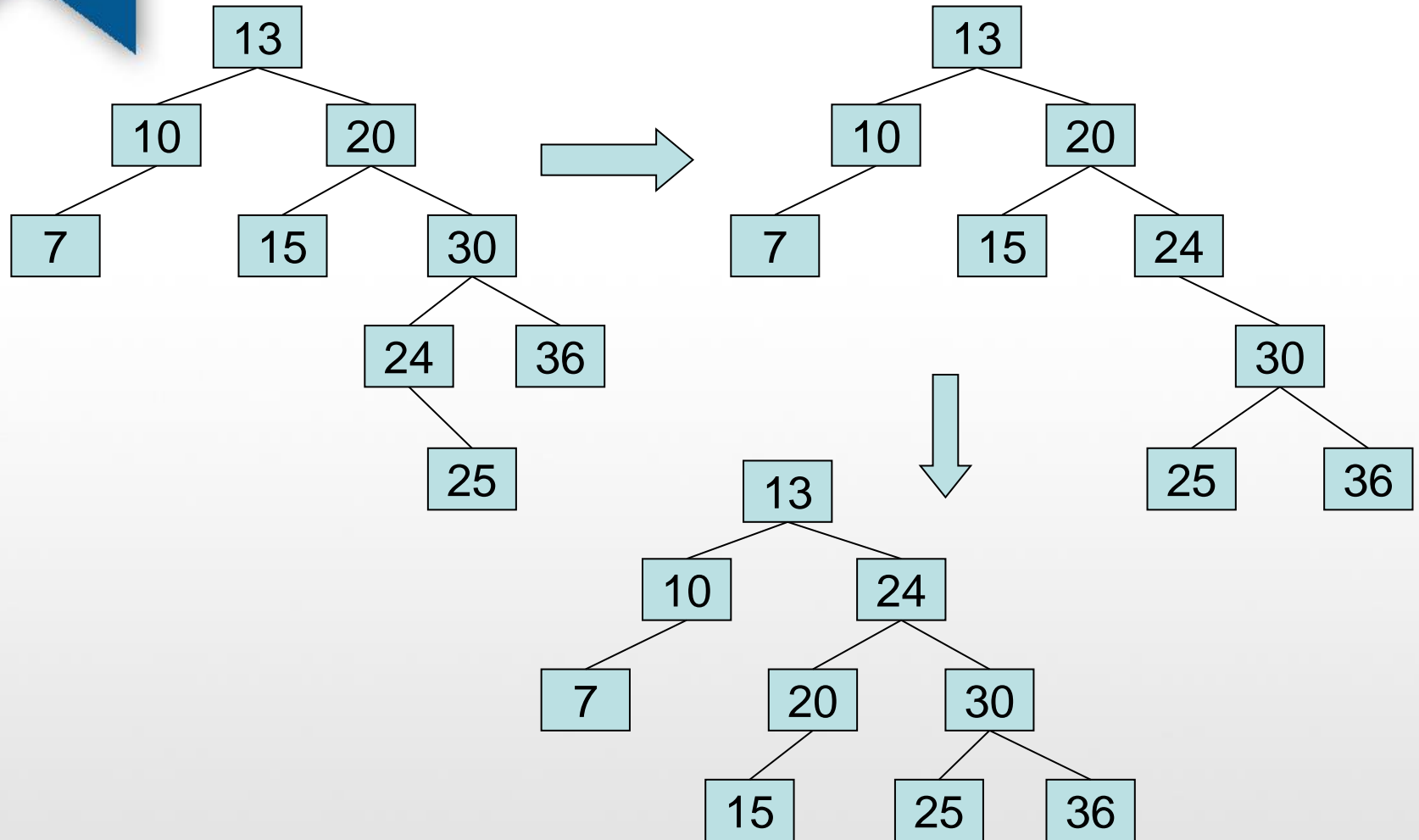
15, 20, 24, 10, 13, 7, 30, 36, 25



15, 20, 24, 10, 13, 7, 30, 36, 25



15, 20, 24, 10, 13, 7, 30, 36, 25



Remove 24 and 20 from the AVL tree.

