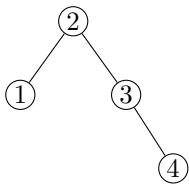# CSCB63 Tutorial 4 — Weight Balanced Trees practice
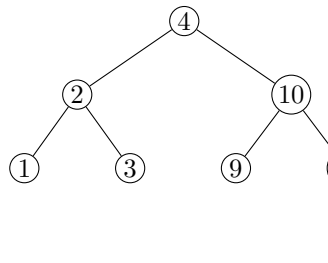
## 1 WBT insert and delete

1. We begin with the empty tree and insert 1, 2, 3, 4, 9, 10, 11, 12, 5, 6, 7, and 8, in that order. Show the trees that result from each of these operations.
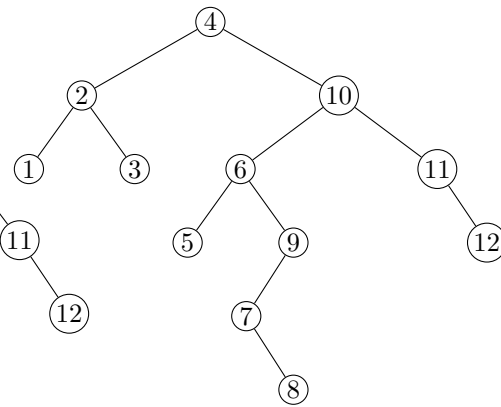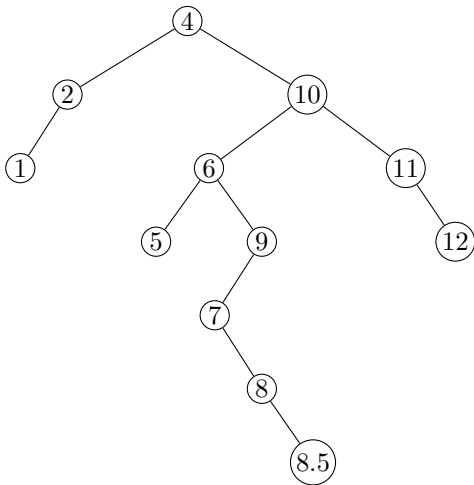
Insert 1, 2, 3, 4:

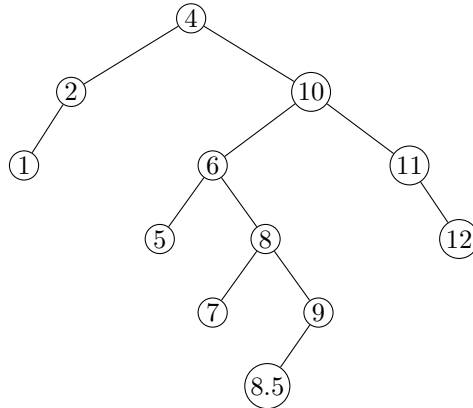Insert 9, 10, 11, 12:

Insert 5, 6, 7, 8:
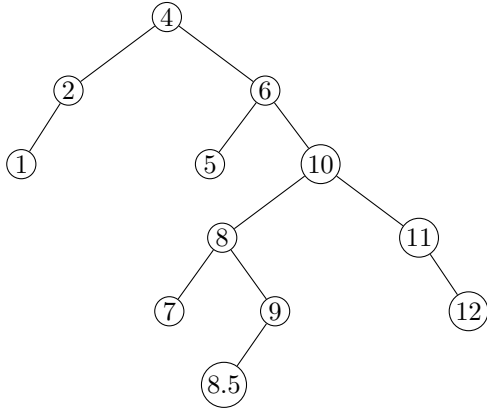
2. Let's now delete 3 and add 8.5.

Before rotations:

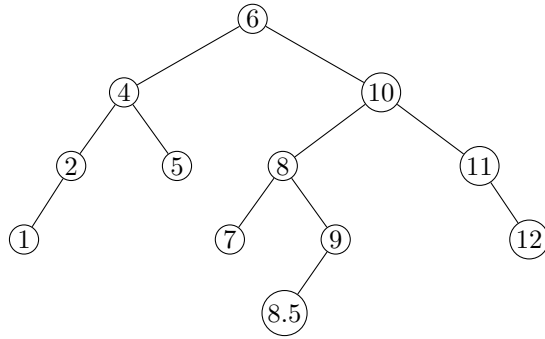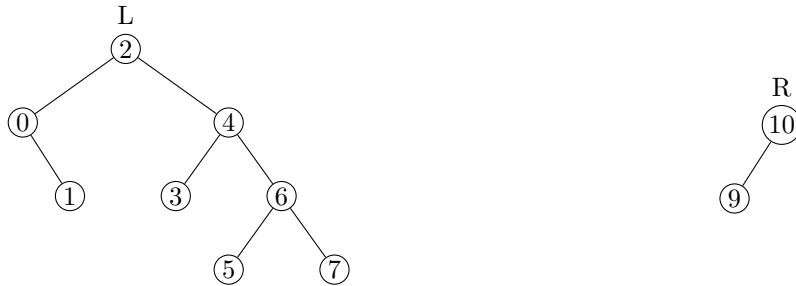After CCW-CW rotation at 9:

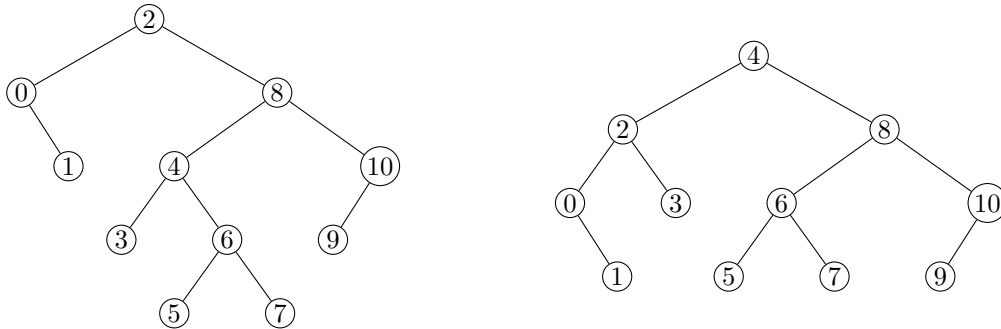After half of CW-CCW rotation at 4:

After second half of CW-CCW rotation at 4:

# 2 Union of balanced trees

Consider the trees $L$ and $R$ below.

1. Using the algorithm for **AVL trees**, show the tree produced by `join(L, 8, R)`.

2. Using the algorithm for **weight-balanced trees**, show the tree produced by `join(L, 8, R)`.