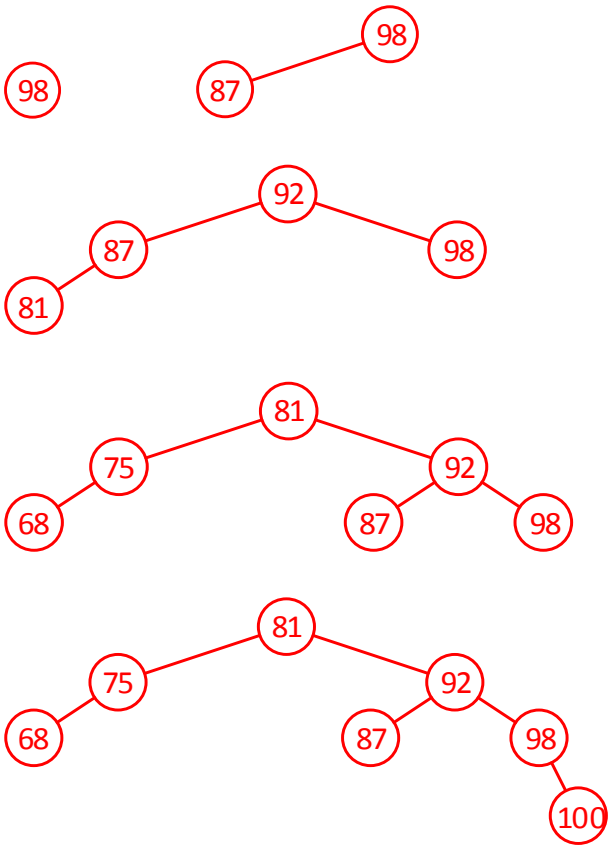
3) (10 pts) ALG (AVL Trees)

(a) (8 pts) An AVL tree stores the grades of the class (in between 1 and 100 inclusive). Create an AVL tree by inserting the following values into an initially empty AVL Tree in the order given: 98, 87, 92, 81, 75, 68, and 100. Show the state of the tree ***after*** each insertion and draw a box around each of these results.



Grading: 1 pt per correct tree
1 pt if last tree is a valid AVL with all 7 elements

(b) (2 pts) What is the fewest and most number of comparisons for looking for a valid grade that is ***not*** within this tree?

Fewest number of comparisons = **2 (e.g. 76 compares against 81 and 75 only – 1 pt, all or nothing)**

Most number of comparisons = **4 (e.g. 99 compares against 81, 92, 98, and 100– 1 pt, all or nothing)**