Review AVL Trees

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First Name Last Name

1. TRUE/FALSE

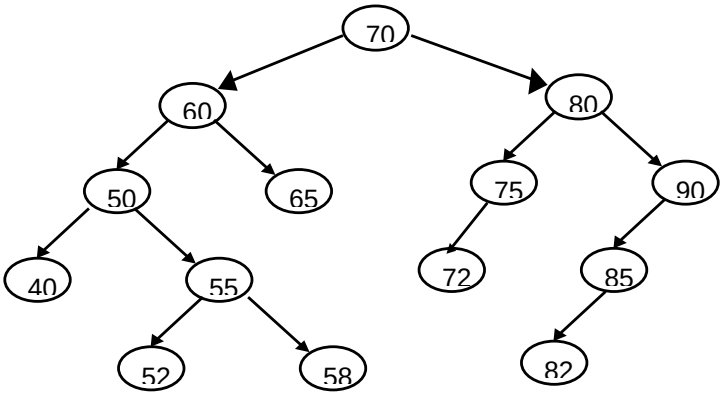
(A). AVL tree are balanced. T / F

(B). AVL trees are named after their creators, the two Russian mathematicians G.M. Adelson-Velskii and E.M. Landis. T / F

(C). The insert and delete algorithm for AVL trees are the same as for regular binary search trees. T / F

(D). The balance factor of a tree is defined as the height of the left subtree minus the height of the right subtree. T / F

2. Give the balance factor of **70** in the following binary tree. Is this tree an AVL tree? Why/why not?



3. What operation does the following algorithm describe?

```
Algorithm AnAVLTreeOperation (root)
     if( left subtree high)
          rotateRight(root)
     else
          rotateLeft(left subtree)
          rotateRight( root )
     end if
end AVLTreeOperation
```

a. rotate right

b. rotate left

c. right balance

d. left balance

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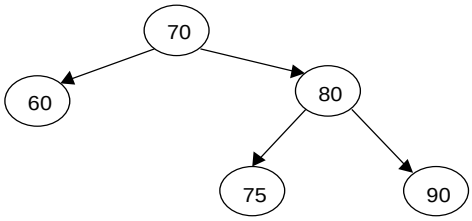
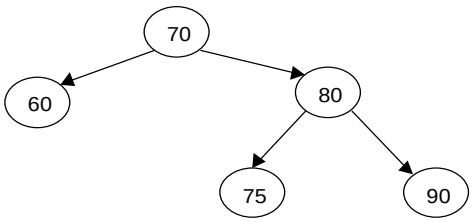
4. Insert the following data into an AVL tree. The result must be an AVL tree. *Show all rotations and balance factors!*

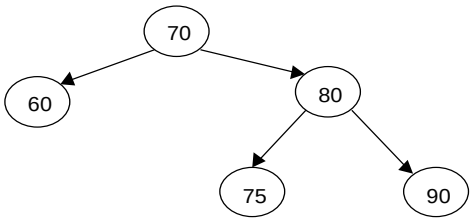
(A). Add 72.



(B). Add 95.



(C). Add 77.



(D). Add 85.