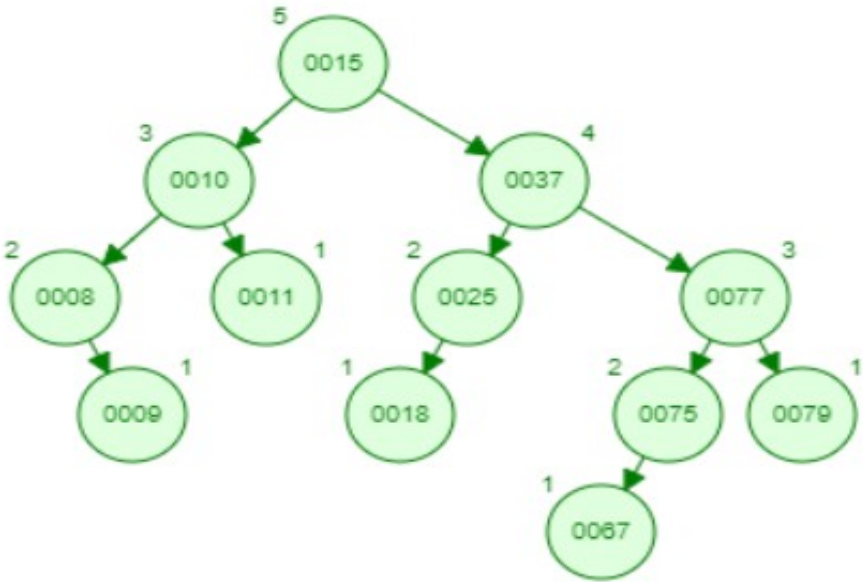
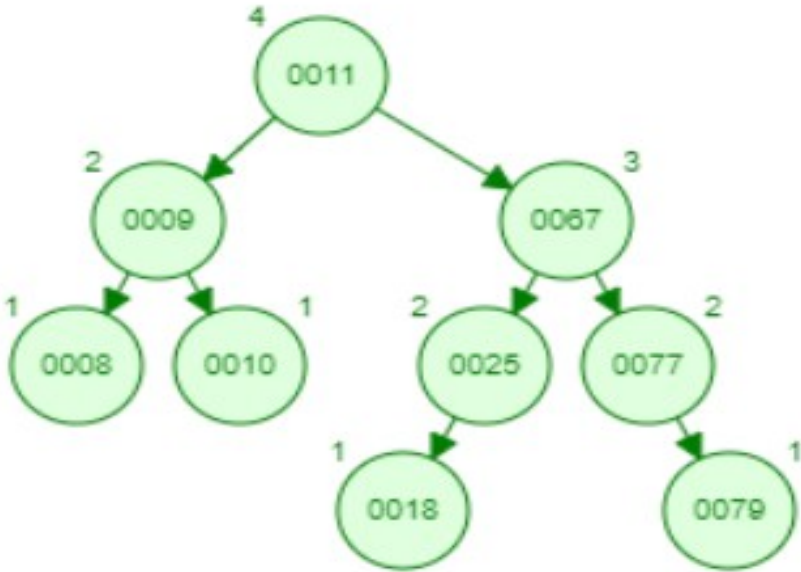


a.1)

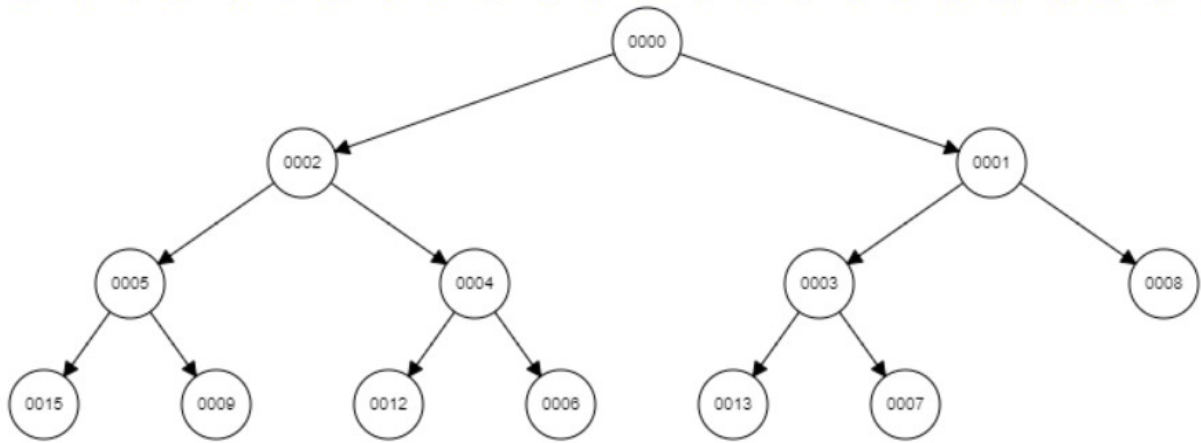


a.2)



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b)



c)

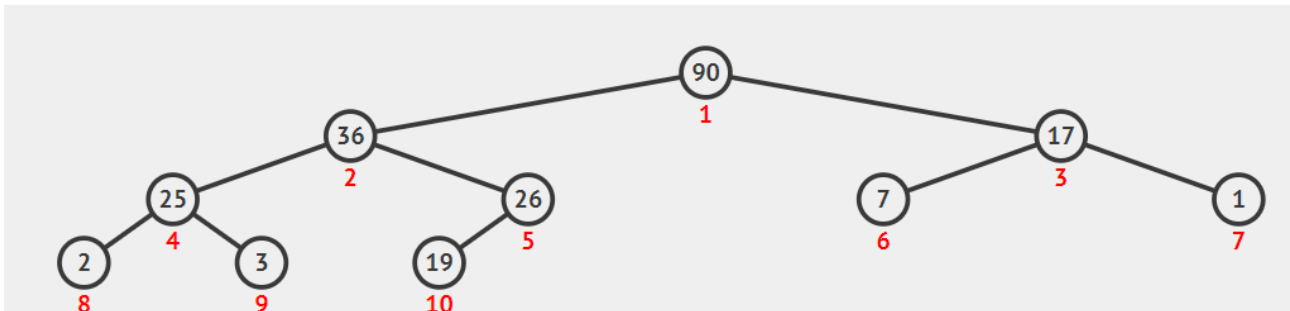
1)



This statement is false since min or max heap must be complete tree but binary search tree is not required to be complete like the example first figure is binary search tree and second one is heap; however both of them have the same items. But structure is different.

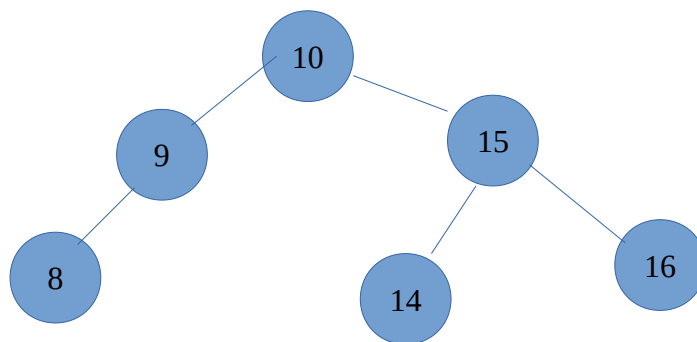
2)

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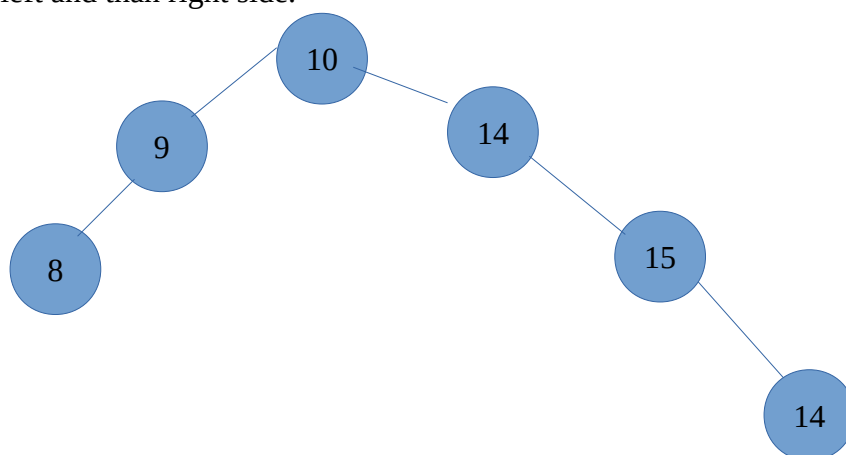


This statement is true since requirement of being heap is that the tree must be complete tree and in any complete tree, leaves can be at last layer or at previous layer of last layer. Therefore the differences of depth of any two leaves can be zero or one. This means it can be at most 1. In the example depth of 8., 9., 10. nodes are 3 and depth of other leaves who are 6 and 7 are 2.

3)

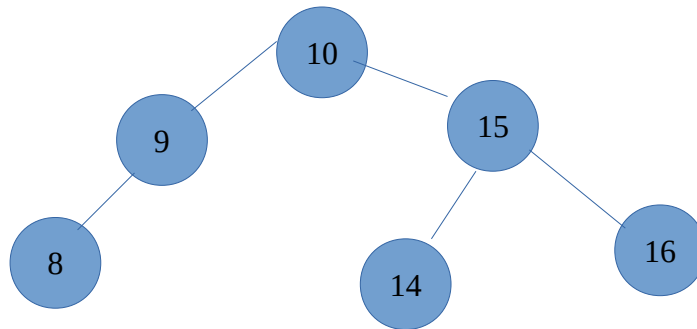


Let 15 firstly rotated left and than right side.



This is structure after left rotation and also this is no longer AVL tree.

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After right rotation, the tree become this structure and this is a AVL tree and it is same with the first one. The statement is true since when oposite operation ,such as right-left or right-left rotation, are applied on any node of AVL the AVL become same AVL with first AVL.