Tutorial 4 – BST & AVL

**Question 1.** Given array A:

```
int A[] = {95, 71, 40, 31, 27, 19, 78, 12, 33, 6, 17, 10, 91}
```

a. Construct a Binary Search Tree (BST) by insert elements from array A into BST one by one. Show the result BST.

b. The following array B is created by randomly shuffle elements in A:

```
int B[] = {17, 10, 40, 31, 78, 19, 27, 33, 12, 6, 95, 71, 91}
```

Build another BST from array B. Show the result BST and compare with the BST from array A.

c. Show A’s BST after removing node 31.

d. Show B’s BST after removing node 17.

**Question 2.** Given array A:

```
int A[] = {17, 10, 40, 31, 78, 19, 27, 33, 91, 6, 95, 12, 71}
```

Construct an AVL tree by insert elements from array A into AVL one by one.

a. Show AVL tree after each insert step.

b. Show AVL tree after removing node 78 from AVL tree in (a).

c. Show AVL tree after removing node 31 from AVL tree in (a).

d. Show AVL tree after removing node 91 and then node 95 from AVL tree in (a).

**Question 3.**

a. Write an algorithm to check if a given Binary Tree is a BST.

b. Write an algorithm to check if a given Binary Tree is an AVL.