Computer Engineering Department, S V N I T, Surat.
B Tech-II (CO) 3rd semester
Course: Data Structure and Algorithm (CO-203)
Tutorial – 7
AVL Tree and its application

1. Insert the following sequence of elements into an AVL tree, starting with an empty tree:
   10, 20, 15, 25, 30, 16, 18, 19.

2. Delete 30 in the AVL tree created above.

3. A cosmetician wants to represent a list of her clients' records (by their ID). For each client we would like to mark whether he is a man or she is a woman. Suggest a data structure that supports the following operations in efficient way, where n is the number of persons (men and women) in the data structure when the operation is executed:

   a) Insert(k,c) - Insert a new client c with id = k to the data structure, at first mark the client as a woman.

   b) Update(k) – Update client with ID = k to be a man.

   c) FindDiff(k) – Find the difference between the number of women and the number of men (| #of women - #of men |) among all the clients with ID smaller than k.