Assignment # 5

Balanced Binary Search Trees(AVL), Binary Heaps

Submission Dead Line: Tuesday 3/11/2015

LATE SUBMISSION WILL NOT BE ACCEPTED

Question 1:

Write C++ code for **AVL-TREE** class, in which Tree node will store the **Height** of node along with data.

- Empty Tree Height: -1
- Leaf Node Height: 0

1. Implement an AVL-insert function, which is modification of the "insert" function of BST class written in the earlier assignment so that the tree remains always balanced by using the AVL rotations. Time complexity must be O (log N).
2. Implement an AVL-print function by changing the ascending order print function of BST written earlier. AVL-print should print the height of each node along with data.

Question 2:

Write C++ code for **MAX-Heap** (priority queue) class using Array for storage of heap with following member functions:

1. Constructor
2. Destructor
3. Insert, Time Complexity O(lgN)
4. Delete-MAX Time Complexity O(lgN)
5. Print-Heap
6. Max-Heapify Time Complexity O(N)
7. Heap-Sort Time Complexity O(N lg N)

You can take **Maximum Size of Heap** as input from User at run time.

HAPPY PROGRAMMING!