HO CHI MINH UNIVERSITY OF SCIENCE
FACULTY OF INFORMATION TECHNOLOGY
SOFTWARE ENGINEERING DEPARTMENT
ADVANCED PROGRAM IN COMPUTER SCIENCE
COURSE: **DATA STRUCTURE**
LECTURER: Dr. ĐINH BÁ TIẾN

WEEK 06
AVL TREE – INSERTION & DELETION
- TRƯƠNG PHƯỚC LỘC
- HỒ TUẤN THANH

HCMC, 2016

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1 Paper assignments

As its title, you should complete these exercises on papers.
Note that you have to write your id and your fullname at the left-top corners of papers and the page numbers at the right-bottom corners of papers.

Given an array of integer numbers: 100, 170, 200, 130, 150, 141, 50, 25, 345, 80, 64, 175, 450, 37, 40, 98 and 117 (you remember that? ☺)
Please insert these numbers from left to right, one by one, into an AVL tree
From the above AVL tree, remove these numbers, one by one.
Please draw a current AVL tree for each number that you insert or remove

2 Coding assignments

2.1 Exercise 01 – AVL tree of integer numbers

1. Initialize an empty AVL tree
2. Insert x into the AVL tree, if it is not in that AVL tree yet
3. Remove x from the AVL tree
4. Search x in the AVL tree
5. Print out value, height, and balance factor of each node in an AVL tree in 3 ways:
   a. Pre-order (Node – Left – Right)
   b. In-order (Left – Node – Right)
   c. Post-order (Left – Right – Node)

To help you, a AVL section in a Data Structure book, Vietnamese version is provided. For each "case" or "if", you are asked to draw a AVL tree to demonstrate this case.