ADSA-2022 **Lab Assignment - 4**

Duration: 3 Hrs (Time:2:15PM to 5:30PM) **Date:06-09-2022**

Instructions

1. This is an individual assignment.

2. Your code must completely be your own. You are not to take guidance from any general-purpose code or problem specific code meant to solve these or related problems. Remember, it is easy to detect this kind of plagiarism

3. ALL PROBLEMS are COMPULSORY. Carefully read all problems.

4. **Write only a single main function**. You can call the required functions from the main function.

4. Name the file as follows: S2021xxxxx_A04.c

5. DO NOT zip. **Upload a single .c file** directly to your submission in the common Google classroom.

Q1 Insert the numbers 12, 14, 15, 17, 3, 4, 9, 10, 20 into an AVL tree. Write functions to implement all rotations for all imbalances (LL, RR, LR, RL) in AVL tree. Print the type of rotation performed and finally give the inorder of the final balanced AVL tree [5]

Q2 Implement the full AVL tree deletion for the above tree starting from the root node. Write a program which demonstrates that your AVL tree can handle several deletions while remaining balanced. Print the inorder traversal of the tree after performing each node deletion. [5]

Note: Make sure that you calculate the balancing factor after each insertion and deletion

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