

ADSA-2021 Lab Assignment - 4 Duration: 3 Hrs (Time:2PM to 5PM)

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 THREE 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: S2020xxxxx_A04.c
 5. DO NOT zip. **Upload a single .c file** directly to your submission in the common Google classroom.
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Q1 Write functions to implement double rotations (LR and RL) in AVL tree. [3]

Q2 Implement the full AVL tree deletion function and write a program that demonstrates that your AVL tree can handle several deletions while remaining balanced. [3]

Q3 Given two AVL trees T1 and T2, where the largest key in T1 is less than the smallest key in T2, Join (T1, T2) returns an AVL tree containing the union of the elements in T1 and T2. Write a Join function that runs in time $O(\log n)$, where n is the size of the resulting AVL tree. [4]
