CS2023 - Data Structures and Algorithms
Take Home Assignment

Week 6 - BST

April, 2023

You are required to answer the below questions and submit a PDF to the submission link provided under this week before the deadline (no extensions will be provided). You can either write / type your answers, but either way your answers should be readable.

Questions

1. Write pseudocode for the deletion operation in a BST. You may use either iterative or recursive approach.
2. What are the (expected) time complexities for the operations in a BST? Insertion, deletion, search, in-order traversal.
   What causes the actual time complexity to deviate from the expected time complexity?
3. Insert the numbers [1,3,5,7,9,11,13,2,4,6,8,10,12] to an empty binary search tree, in the given order. It is sufficient to draw the final tree.
   (a) What is the tree height?
   (b) Give an alternative ordering of the same number list which can form a BST with minimum possible height.
   (c) Draw the corresponding BST.