CS619 Advanced Data Structures and Algorithms Laboratory
Autumn 2024
Assignment 5
Maximum marks: 10

Objective

The objective of this assignment is to implement insert, pre-order traversal, flip, and fill operations on a Binary Search Tree (BST).

Insert operation inserts a key into a BST. Flip operation flips the structure of a BST (keys are ignored) so that for every node the left child becomes the right child and the right child becomes the left child. Fill operation fills a list of keys into an existing BST.

Task

You are given a list of distinct keys as a command-line argument.

1. Build a BST from the given keys using Insert operation.
2. Implement pre-order traversal.
3. Implement the flip operation to create a flipped BST (with keys ignored)
4. Implement the fill operation which fills the same set of keys into the flipped BST.

Evaluation

The maximum marks for this assignment is 10. Implementing the first two tasks give you 5 marks and implementing the next two tasks give you additional 5 marks. Viva is an essential part of the evaluation. A plagiarism test will be conducted after the deadline and if found guilty a “-10” mark will be awarded to the corresponding students and may be forwarded to the disciplinary action committee in grave cases.

Submission

Your program must be submitted through moodle on or before 8th October. You have to submit the same code that you show to the instructor. You can use two lab sessions (1st Oct and 8 Oct) and the time in between for implementation. Viva will be conducted on 8th October.