Data Structures

Lab 08 – BST

Exercises/Tasks:

1. Write a program that implements all the required methods of a Binary Search Tree like insert, delete, search, and isEmpty, etc. Create the tree object and call the different methods to show the working in the main method.
2. Modify the previous task and add the traversal methods (preOrder, inOrder, and postOrder) as well. Then, call them as well in the main method to show the functionality.
3. You are given the root of a binary search tree (BST) and an integer **val**. Find the node in the BST where the node's value equals **val** and return the subtree rooted with that node. If such a node does not exist, return null.
4. Given two integer arrays preorder and inorder where preorder is the preorder traversal of a binary tree and inorder is the inorder traversal of the same tree, construct and return the binary tree.
5. Any two task from leetcode related to BST.

Practice Questions:

0	**-1**	**-1**	**1**	**1**	**1**	**0**
-1	*2*	*5*	*4*	*10*	*3*	*-1*
3	*2*	*-1*	*-1*	*0*	*3*	*8*
7	*-1*	*10*	*2*	*-1*	*-1*	*17*
4	*3*	*9*	*-1*	*-1*	*8*	*33*
17	*-1*	*-1*	*1*	*0*	*44*	*100*

Given a matrix above, you must start from YELLOW Box and reach to the goal which is Green Box by traversing each cell with maximum value of neighbors. -1 in any cell means BLOCK, you cannot visit that cell. You can move any cell in neighbors ONLY.
In case all the neighbors have -1 value then show message, NO POSSIBLE PATH due to BLOCKs on every side.
START: [0, 0] à YELLOW
GOAL: [n-1, n-1] à GREEN
You have to follow Greedy Approach, Greedy approach means selecting with immediate high reward (short term). In this problem, reward is your neighbors value.
Example of selecting path is given in above matrix, highlighted with ORANGE color