Modification Question II
AVL Tree Operations

Problem

You have been assigned the task of developing a Tree Management System for a company's database which needs to maintain an AVL tree structure T. This AVL tree will be used to store and manage a large number of keys (up to 10^6). Your task is to design a menu-driven program that enables users to interact with this AVL tree. The AVL Tree Management System should support the following functionalities:

(a) `Insertion of Keys (insert(T,n))`: The company's database needs to handle various keys representing unique identifiers for records. The system should allow users to insert a new key into the AVL tree while ensuring that the tree remains balanced.

(b) `PostOrder(T)`: Prints the post order traversal of the binary tree T.

(c) `Second Largest leaf node (SecondMax(T))`: The database administrators need to find the second maximum value in the leaf nodes of the tree T.If there is no Second Largest node value then print -1.

Input Format

1. Each line contains a character from {'i','p', 's','e'} followed by zero or one integer n, where $n \in [1, 10^6]$.
2. Character 'i' is followed by a positive integer n separated by a space. Perform `insert(T, n)` operation.
3. Character 'p' prints the postorder traversal of the vault.
4. Character 's' calls `SecondMax(T)`.
5. Character 'e' terminates the execution of the program.

Output Format

The output of each command should be printed on a separate line.However no output is printed for 'i' and 'e'.

- For option 'p', print the postorder traversal of T. Each node's value is separated by a space.
- For option 's', print the second maximum value of the leaf nodes of the tree.

TestCase

Input1:

```
i 35
i 45
i 55
i 47
i 50
i 52
i 60
i 65
p
s
e
```

Output:

```
35 47 45 52 65 60 55 50
52
```

Input2:

```
i 100
i 105
i 110
i 12
i 71
p
s
e
```

Output:

```
12 100 71 110 105
100
```