PRACTICE COMPETE JOBS LEADERBOARD Search PoojanThaker

All Contests > BINARY TA > Tree Edit Distance

Tree Edit Distance

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Problem Submissions Leaderboard Discussions

You are given two binary trees A and B.Each node in both the trees is assigned an integral value. An operation can be of three types:

1.**Edit** Operation : Change the value of the node.

2.**Delete** Operation : Remove the node from the tree.(Only leaf nodes can be deleted)

3.**Add** Operation : Add a node to the tree.(Only leaf nodes can be added)

Find number of operations of all 3 types required to make tree A identical to Tree B such that the **total number of operations is minimum**. Note that tree A is identical to tree B if A and B have the same structure and same values of the corresponding nodes.

Note: You are only allowed to do operations on Tree A.

Input Format

The first line denotes **t**, the number of test cases.

The first line of a test case dentotes $\mathbf{N_A}$, the number of nodes in the tree A.

The next N_A lines are in the format **a b c** where a is the node, b is the left child of the node and c is the right child of the node.

The next line contains N_A space seperated integers where i^{th} integer deontes value of the i^{th} node.

The next line denotes $\mathbf{N_B}$, the number of nodes in the tree B.

The next N_B lines are in the format **a b c** where a is the node, b is the left child of the node and c is the right child of the node.

The next line contains N_B space seperated integers where i^{th} integer deontes value of the i^{th} node.

Note 1 : Both the trees are rooted at node 1.

Note 2 : A NULL node is indicated by a value of -1.

Constraints

t <= 10 , Value at each node <= 1000000

For 2 points : Only edit operations are required to convert A to B , na<=100 , nb<=100

For next 2 points : Graph is linear , na<= 1000 , nb<=1000

For next 3 points : na<=1000 , nb<=1000

For next 3 points : na<=100000 ,nb<=100000

Output Format

Answer each test case on a seperate line.

For a test case, print the 3 space seperated integers. The number of **add** operations followed by the number of **delete** operations followed by the number of **edit** operations.

Sample Input 0

```
1
4
1 2 3
2 4 -1
3 -1 -1
4 -1 -1
1 3 4 5
4
1 2 3
2 4 -1
3 -1 -1
4 -1 -1
1 2 4 5
```

Sample Output 0

```
0 0 1
```

Explanation 0

The trees given are -

```
             (Node 1:1)                           (Node 1:1)
             /       \                            /        \
        (Node 2:3)   (Node 3:4)             (Node 2:2)    (Node 3:4)
            /                                   /
     (Node 4:5)                             (Node 4:5)
```

Note : (Node i:v) denotes node with index i and value v.

Value of node corresponding to node 2 of Tree B is edited from 3 to 2.

Sample Input 1

```
1
4
1 2 4
2 3 -1
3 -1 -1
4 -1 -1
3 3 19 4
5
1 5 4
2 -1 3
3 -1 -1
4 -1 2
5 -1 -1
3 11 9 4 2
```

Sample Output 1

```
2 1 1
```

Explanation 1

The trees given are-

```
            (Node 1: 3)                             (Node 1:3)
             /      \                              /         \
      (Node 2: 3)  (Node 4: 4)               (Node 5: 2)   (Node 4: 4)
           /                                                     \
   (Node 3: 19)                                              (Node 2:11)
                                                                    \
                                                                (Node 3:9)
```

Note : (Node i:v) denotes node with index i and value v.

Edit operation at corresponding Node of Node 5 of Tree B.

Add operations for adding Node 2 and Node 3 of Tree B to Tree A.

Delete operation for deleting Node 3 of Tree A.

Submissions: 0
Max Score: 10
Difficulty: Medium

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C

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main() {

    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    return 0;
}

```

Line: 1 Col: 1

Upload Code as File ☐ Test against custom input Run Code Submit Code