Problem B: Banana Tree

Filename: *banana*
Time limit: *2 seconds*

Everyone knows that monkeys love bananas! A monkey is at the base of a banana tree and is willing to take a single path up the tree to gather bananas. At each juncture of the tree, there may possibly be some bananas as well as several branches the monkey can traverse. The monkey will only choose one branch and take it until it hits the next juncture. At this point, there may be some more bananas as well as some more branches to consider. Eventually, the monkey will end up at a juncture which has no more branches and that will be when he traces his path down with all the bananas he's collected and gets back on solid ground.

As you probably already guessed, your job is to write a program to calculate the maximum number of bananas the monkey could obtain.

The Problem

Given the arrangement of junctures of a banana tree, as well as the number of bananas found at each juncture, calculate the maximum number of bananas available on any single path from the root of the tree to any of the leaf nodes of the tree.

The Input

The first line of input will contain a single positive integer, c ($c \leq 20$), representing the number of input cases to process. The input cases follow. The first line of each input case will contain a positive integer, n ($n \leq 1000$), representing the number of junctures in the tree. Juncture 1 will be the root of the tree. The following line will contain n space separated integers. The ith integer on this line, b_i ($0 \leq b_i \leq 10^6$), represents the number of bananas found at juncture i. The last line of each input case will also contain n space separated integers. The ith integer on this line, p_i ($0 \leq p_i \leq n$), represents the parent node of juncture i. Note that 0 will be listed as the parent of juncture 1, even though juncture 1 has no parent node. Also, a node with a higher number may be the parent of a node with a lower number.

The Output

For each input case, on a line by itself, output the maximum number of bananas the monkey could gather.

Sample Input

```
2
7
2 3 8 6 4 5 9
0 1 1 2 2 3 3
10
9 2 2 3 7 4 12 3 8 6
0 8 5 3 1 1 5 9 1 9
```

Sample Output

```
19
28
```