Problem D
Heaps from Trees

You are given a rooted tree with n nodes. The nodes are labeled $1..n$, and node 1 is the root. Each node has a value v_i.

You would like to turn this tree into a heap. That is, you would like to choose the largest possible subset of nodes that satisfy this Heap Property: For every node pair i,j in the subset, if node i is an ancestor of node j in the tree, then $v_i > v_j$. Note that equality is not allowed.

Figure out the maximum number of nodes you can choose to form such a subset. The subset does not have to form a subtree.

Input

Each input will consist of a single test case. Note that your program may be run multiple times on different inputs. The first line of input will contain a single integer n ($1 \leq n \leq 2 \cdot 10^5$), which is the number of nodes in the tree. The nodes are numbered $1..n$.

Each of the next n lines will describe the nodes, in order. They will each contain two integers v_i and p_i, where v_i ($0 \leq v_i \leq 10^9$) is the value in the node, and p_i ($0 \leq p_i < i$) is the index of its parent. Every node's index will be strictly greater than its parent node's index. Only node 1, the root, will have $p_1 = 0$, since it has no parent. For all other nodes ($i = 2..n$), $1 \leq p_i < i$.

Output

Output a single integer representing the number of nodes in the largest subset satisfying the Heap Property.

Sample Input 1	Sample Output 1
5 3 0 3 1 3 2 3 3 3 4	1

Sample Input 2	Sample Output 2

<pre>5
4 0
3 1
2 2
1 3
0 4</pre>
	<pre>5</pre>

Sample Input 3	Sample Output 3

<pre>6
3 0
1 1
2 1
3 1
4 1
5 1</pre>
	<pre>5</pre>

Sample Input 4	Sample Output 4

<pre>11
7 0
8 1
5 1
5 2
4 2
3 2
6 3
6 3
10 4
9 4
11 4</pre>
	<pre>7</pre>