INOI, Iranian National Olympiad in Informatics
Online Contest, April 2008
First Exam

Jack and the Magic Beans

Time limit for each test: 900 miliseconds
Memory limit: 160 megabytes

After taking all the money from the Giant of fairy tales, Jack decided to make more money by going to the other giants' castles. Jack started his plan by planting n magic beans on a straight line and waiting for seven days and seven nights for them to grow.

Now, it is time for Jack to reap the harvest. However, there is still a little problem with his plan. After taking money from all the giants, Jack should come down from the first tree (the closest one to his house) and make sure that all the trees fall. But, the only thing that he can do is cutting down some of the trees with his axe. Jack had a lot of training when he was young and he is a very skillful lumberjack, so he can cut down a tree such that it falls in any direction that he wants. Jack's house is on the left side of all the trees. If a tree falls on another tree, the new tree also falls in the same direction. More precisely, let's assume that the falling tree has distance D from Jack's house and its height is H. If that tree is falling to the right, all the remaining (not fallen yet) trees of distance between D and $D+H$ (i.e. $D \leq \text{distance} \leq D+H$), will also fall to the right, and if it was falling to the left, all the remaining trees of distance between $D-H$ and D (i.e. $D-H \leq \text{distance} \leq D$), will also fall to the left.

Before starting the operation, Jack wants to know how many trees does he need to cut down (and determine to fall to either left or right) to make sure that all of the trees will finally fall. However to simplify the problem, after coming down from the first tree, Jack only cuts the trees from left to right (He'll always move to right and cut one of the trees on his right that has not already fallen). For example in the sample input, if he wants to cut trees 1, 6, and 4, he should first cut 1, then 4, and then 6. Also, it is obvious that he can not cut down any tree that has already fallen.

Problem

Write a program that

- Reads distances of the trees and their height from the *Standard Input*.
- Computes the minimum number of trees that should be cut to make all the trees fall.
- Writes that number to the *Standard Output*.

Input Sepcification

The first line of the input contains one integer n.
On each of the next n lines, there is a pair of nonnegative integers separated with a single space. On the i^{th} line (from these n lines), the first number is the distance of the i^{th} tree, and the second number is the height of the tree. Note that, the distance of the trees in the input is strictly increasing, i.e., the i^{th} tree is on the left side of the $i+1^{\text{st}}$ tree.

Output Specification

Write a single integer in the only line of output: the minimum number of trees needed to cut in order to make all the trees fall.

Restrictions

- $1 \le n \le 10^6$
- The numbers in the input are at most 10^8.

Example

Standard Input	Standard Output
6 1 5 3 3 6 4 12 1 15 2 18 3	3