

# Reto Nro 1 Desfile

Very soon there will be a parade of victory over the alien invaders in Mogotes. Unfortunately, all the soldiers killed in the war and now the army is fully composed of new recruits, many of whom do not even know which leg should begin with a march. The civilian population does not understand which of the legs start to go, so it is only important how many soldiers marching in the parade.

There will be  $n$  columns participating in the parade, the  $i$ -th column is  $l_i$  soldiers, who begin to march with the left leg, and  $r_i$  soldiers, who begin to march with the right leg.

The beauty pageant is calculated by the following formula: if  $L$  is the total number of soldiers in the parade starting to march with the left leg, and  $R$  is the total number of soldiers in the parade to begin to march with the right leg, beauty is equal to  $|L - R|$ .

In order to have the greatest beauty, not more than once, you can choose a column and tell all the soldiers in this column change leg starting, ie, everyone in this column that starts up with left leg now begin with the right leg and vice versa. Formally, it can be exchanged, not more than one index  $i$ ,  $l_i$  values and  $r_i$ .

Find the index of the column, so that changing the starting leg for soldiers in this column maximize the beauty pageant, or determine that it is not necessary to change to increase the current beauty.

## Input

The first line contains a single integer  $n$  ( $1 \leq n \leq 105$ ) - which is the number of columns. The following  $n$  lines contain pairs of integers  $l_i$  and  $r_i$  ( $1 \leq l_i, r_i \leq 500$ ) - the number of soldiers in the  $i$ th column begin to march with the left leg or right leg respectively.

## Output

Print a single whole number  $k$  - the number of the column in which the soldiers need to change leg that begin to March, or 0 if the maximum beauty is already reached. Note that the columns are numbered from 1 to  $n$ , in the order in which the input data are given. If there are multiple answers, print any of them.

## Example

**Input:**

```
3
5 6
8 9
10 3
```

**Output:**

```
3
```

**Input:**

```
2
6 5
5 6
```

**Output:**

```
1
```

**Input:**

```
6
5 9
1 3
4 8
4 5
23 54
12 32
```

**Output:**

```
0
```

## NOTA

En el primer ejemplo, si usted no da la orden para cambiar la pierna de inicio, el número de soldados, que comienzan a marchar con la pierna izquierda, sería igual a  $5+8+10 = 23$ , y con la pierna derecha  $6+9+3 = 18$ . Si se le da la orden de cambiar la pierna con la que inician el desfile a la tercera (3) columna, el número de soldados que marchan con la pierna izquierda, será igual a  $5+8+3 = 16$ , y con la pierna derecha  $6+9+10 = 25$ . Es imposible llegar a una mayor belleza al dar otras órdenes. Por lo tanto, la belleza máxima que se puede alcanzar es 9.