F. Swap Space

Time limit: 10s

You administer a large cluster of computers with hard drives that use various file system types to sto data. You recently decided to unify the file systems to the same type. That is quite a challenge sin all the drives are currently in use, all of them are filled with important data to the limits of the capacities, and you cannot afford to lose any of the data. Moreover, reformatting a drive to use a ne file system may significantly change the drive's capacity. To make the reformat possible, you will ha to buy an extra hard drive. Obviously, you want to save money by minimizing the size of such ext storage.

You can reformat the drives in any order. Prior to reformatting a drive, you must move all da from that drive to one or more other drives, splitting the data if necessary. After a drive is reformatte you can immediately start using it to store data from other drives. It is not necessary to put all t data on the same drives they originally started on — in fact, this might even be impossible if some the drives have smaller capacity with the new file system. It is also allowed for some data to end u on the extra drive.

As an example, suppose you have four drives A, B, C, and D with drive capacities 6, 1, 3, and GB. Under the new file system, the capacities become 6, 7, 5, and 5 GB, respectively. If you buy on 1 GB of extra space, you can move the data from drive B there and then reformat drive B. Now y have 7 GB free on drive B, so you can move the 6 GB from drive A there and reformat drive A. Final you move the six total gigabytes from drives C and D to drive A, and reformat C and D.

## Input

The input file contains several test cases, each of them as described below.

The input begins with a line containing one integer $n$ ($1 \leq n \leq 10^6$), which is the number of driv in your cluster. Following this are $n$ lines, each describing a drive as two integers $a$ and $b$, where $a$ the capacity with the old file system and $b$ is the capacity with the new file system.

All capacities are given in gigabytes and satisfy $1 \leq a, b \leq 10^9$. (One thousand petabytes should enough for everyone, right?)

## Output

For each test case, display the total extra capacity in gigabytes you must buy to reformat the driv on a line by itself.

## Sample Input

```
4
6 6
1 7
3 5
3 5
4
2 2
3 3
5 1
5 10
```

## Sample Output

```
1
5
```