

Bob the Builder

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

Bob is a builder. His crew has received n jobs that they must complete. The i th job will take w_i days of work, and is expected to be done in t_i days. As Bob's crew is quite small, they can only work on one job at a time.

Bob's business has a unique payment structure, based on how early or late the job is done.

- A job that is done k days before the expected completion date earns Bob k dollars.
- However, a job that is done k days after the expected completion date loses Bob k dollars.
- Bob neither earns nor loses money on a job that is done exactly on the expected completion date.

Help Bob schedule the jobs so as to maximise the money he can earn.

Input

The first line contains the integer n ($1 \leq n \leq 100\,000$).

The next n lines each contain two integers w_i and t_i ($1 \leq w_i \leq 100\,000$ and $1 \leq t_i \leq 10\,000\,000\,000$).

Output

Output a single integer: the maximum money that Bob can earn by scheduling all of the jobs. This number may be negative if Bob will lose money.

Examples

standard input	standard output
3 1 2 1 3 1 4	3
4 5 10 6 10 3 10 2 10	7
2 500 2 600 1	-1597
3 50000 9000000000 100000 5000000000 80000 10000000000	23999590000

Note

In the first sample case, Bob can schedule the jobs in the given order. Then, the first job is completed after 1 day, the second job is completed after 2 days and the third job is completed after 3 days. Since each job is completed 1 day early, Bob earns 3 dollars.

In the second sample case, Bob should complete the jobs in the following order: fourth, third, first, second. This earns him $(10 - 2) + (10 - 5) + (10 - 10) + (10 - 16) = 7$ dollars.