No Need to Hurry!

Time Limit: 1 Second
Memory Limit: 256 MB

You just woke up and discovered that you will have a bad day because you have way toooooo many deadlines to catch today! In specific, you have n ($1 \leq n \leq 10^5$) homework assignments due today, and the i-th assignment takes d_i seconds to finish and is due at t_i ($1 \leq t_i, d_i \leq 86400$), where t_i is the number of seconds since 12AM. However, you are very sleepy so you want go back to sleep until you have to get up before it is too late to finish all assignments before their deadlines. Find out the latest time in second that you have to start working on your assignments. If you cannot finish all assignments even if you start at 12AM, output -1.

Input

The first line contains a single integers n ($1 \leq n \leq 10^5$, $0 \leq m < n$) - the number of assignments you have.

The next n lines describe the assignments. The i-th line contains two integers d_i and t_i ($1 \leq d_i, t_i \leq 86400$), as described in the problem statement.

Output

Output a single integer denoting answer.

Sample Inputs

```
3
3600 86400
7200 43200
500 20000
```

Sample Outputs

```
19500
```