DMOPC '15 Contest 2 P5 - Sysadmin

Time limit: 1.0s **Memory limit:** 64M

Every day as the sun sets, **quantum** opens up his terminal and connects to the DMOJ site server. Like any sysadmin, **quantum** likes statistics about anything and everything. Today, he's interested in the memory usages of all the applications running on the server.

As he runs `top`, he notices that N programs, identified $0, \ldots, N-1$, appear to have memory leaks. That is, program i's memory usage increases by M_i KB every second, each starting from a **distinct** S_i KB. Finding this race of programs fun to watch, **quantum** would like to answer Q queries: for each query i, he'd like to know which program has the **greatest** memory usage after Q_i seconds. There might be multiple, in which case he'd like to know the one with the smallest identifier.

Constraints

For all subtasks:

$1 \leq M_i \leq 1\,000$

$1 \leq S_i \leq 1\,000\,000$

Subtask 1 [20%]

$1 \leq N \leq 500$

$1 \leq Q \leq 500$

Subtask 2 [80%]

$1 \leq N \leq 100\,000$

$1 \leq Q_i \leq 500\,000$

Input Specification

The first line of input will contain the space-separated integers N and Q.
For the next N lines of input, line i will contain two integers S_i, and M_i.
Finally, the last Q lines will each contain a query.

Output Specification

For each query, the id of the program using the most memory at the given time.

Sample Input

```
2 2
400 100
200 200
1
10
```

Sample Output

```
0
1
```

Explanation

After the 1 second, program 1 uses 500 KB of memory, while 2 uses only 400 KB. Following 10 seconds, program 2 is in the lead, with 2200 KB of memory used.