USACO 2024 FEBRUARY CONTEST, BRONZE
PROBLEM 3. MAXIMIZING PRODUCTIVITY

Time Remaining: **3 hrs, 59 min, 12 sec**

Not submitted yet

English (en)

Farmer John has N ($1 \leq N \leq 2 \cdot 10^5$) farms, numbered from 1 to N. It is known that FJ closes farm i at time c_i. Bessie wakes up at time S, and wants to maximize the productivity of her day by visiting as many farms as possible before they close. She plans to visit farm i on time $t_i + S$. Bessie must arrive at a farm strictly before Farmer John closes it to actually visit it.

Bessie has Q ($1 \leq Q \leq 2 \cdot 10^5$) queries. For each query, she gives you two integers S and V. For each query, output whether Bessie can visit at least V farms if she wakes up at time S.

INPUT FORMAT (input arrives from the terminal / stdin):

The first line consists of N and Q.

The second line consists of $c_1, c_2, c_3 \dots c_N$ ($1 \leq c_i \leq 10^6$).

The third line consists of $t_1, t_2, t_3 \dots t_N$ ($1 \leq t_i \leq 10^6$).

The next Q lines each consist of two integers V ($1 \leq V \leq N$) and S ($1 \leq S \leq 10^6$).

OUTPUT FORMAT (print output to the terminal / stdout):

For each of the Q queries, output YES or NO on a new line.

SAMPLE INPUT:

```
5 5
3 5 7 9 12
4 2 3 3 8
1 5
1 6
3 3
4 2
5 1
```

SAMPLE OUTPUT:

```
YES
NO
YES
YES
NO
```

For the first query, Bessie will visit the farms at time $t = [9, 7, 8, 8, 13]$, so she will only get to visit farm 4 on time before FJ closes the farm.

For the second query, Bessie will not be able to visit any of the farms on time.

For the third query, Bessie will visit farms $3, 4, 5$ on time.

For the fourth and fifth queries, Bessie will be able to visit all but the first farm on time.

SCORING:

- Inputs 2-4: $N, Q \leq 10^3$
- Inputs 5-9: $c_i, t_i \leq 20$
- Inputs 10-17: No additional constraints.

Problem credits: Chongtian Ma

Language: C

Source File: 选取文件 未选择文件

Submit Solution

Language: C

选取文件 未选择文件

Submit Solution