Task «K-th maximum»

Implement a balanced binary search tree.

Write a program that implements a data structure that allows adding and removing elements, as well as finding the k-th maximum.

Input format

The first line of the input file contains an integer n – the number of commands ($1 \le n \le 100'000$).

The next n lines contain one command each. The command is written as two numbers c_i and k_i are the type and argument of the command, respectively ($|k_i| \le 10^9$). Commands are of three types:

- +1 (or just 1): Add element with key k_i;
- 0: Find and output k_i-th maximum;
- -1: Remove element with key k_i.

It is guaranteed that in the course of work in the structure it is not required to store elements with equal keys or delete non-existent elements. It is also guaranteed that when requesting k_i-th maximum, it exists.

Output format

For each command of type 0, print a line containing a single number – k_i-th maximum.

Sample input:

```
11
+1 5
+1 3
+1 7
0 1
0 2
0 3
-1 5
+1 10
0 1
0 2
0 3
```

Sample output:

```
7
5
3
10
7
3
```