

Assignment 1: Problem 3

Giftivism

Its Felicity time! This year at Felicity, Arjun is planning to have a Giftivism stall. People can come to the stall, and donate something of their own, or take a gift.

As Arjun is a nice guy, whenever someone comes for a gift, he gives away the largest gift he has at that time. Arjun made a log, noting down, in order, which gifts were donated, or given away. But sadly, he forgot to write down the sizes of the gifts given away.

His log looks like this:

+ w : When a gift of size w is donated.

− : When a gift is given away.

Given the log, tell him which gifts were given away.

Input

Each line of the input is one of:

+ w : Add gift of size w ($1 \leq w \leq 10^9$)

− : Give the largest gift away.

The input is terminated by a #

The total number of lines of input is $\leq 10^5$

Output

For each query of type "−", print the size of the gift given away.

If he has no gifts to give away, print −1

Sample Input

```
+ 1
+ 2
+ 6
-
+ 4
+ 5
-
-
#
```

Sample Output

```
6
5
4
```

Explanation

During the first giveaway, the gifts he has are: $\{1, 2, 6\}$. So he gives gift of size 6 away.

The second time, he has gifts $\{1, 2, 4, 5\}$. So he gives gift of size 5 away.

Then, he has gifts $\{1, 2, 4\}$. So he gives gift of size 4 away.

Limits

Time: 2 seconds

Memory: 512 MB