| CODEFORCES
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PROBLEMS   SUBMIT CODE   MY SUBMISSIONS   STATUS   STANDINGS   CUSTOM INVOCATION

B. Digit occurrence Sum

time limit per test: 1.5 seconds

memory limit per test: 256 megabytes

Given n distinct non-negative currently available integers $a_1, a_2, \ldots, a_n$. Define the function $count(x)$ as the number of times the digit x appears in all currently available integers. For any integer k, $f(k)$ is defined as the sum of $count(x)$ for each digit x in k.

For example, let's consider the currently available integers: $70, 123, 311, 125$. In this case, $count(0) = 1$, $count(1) = 4$, and so on. For $f(311)$, we have $count(3) + count(1) + count(1) = 2 + 4 + 4 = 10$.

You will be given q queries, each of which can be one of the following three types:

1. $+\ k$: Add integer k to the currently available integers if it's not already present. If k is already in the list, remove it.

2. $-\ k$: Delete the k-th largest integer from the currently available integers. If there are fewer than k integers available, skip this operation.

3. $?\ k$: Print $f(k)$ if k is currently available among the integers. If k is not available, print -1.

Input
The first line consists of two integers n, q.

Second line consists of n integers $a_1, a_2, \cdots, a_n$.

Next q lines each consist of $-\ k, +\ k$ or $?\ k$.

$1 \leq n, q \leq 3 \times 10^5$

$1 \leq a_i \leq 2 \times 10^9$

Output
For each "$?\ k$" In the query, Print $f(k)$ if k is currently available. Otherwise print -1.

Example

input	Copy

```
4 6
70 123 311 125
? 123
- 2
? 123
+ 234
- 3
? 123
```

output	Copy

```
8
6
-1
```