Running Mean, Median and Mode AZ101

? Ask Doubt

Time-Limit: 1 sec Score: 0/100 Difficulty :

Memory: 256 MB Accepted Submissions: 100

Description

You have an empty array and can perform the following operations on it:

1. insert x - add integer x to the array
2. remove x - remove integer x from the array. It's guaranteed the element present in it.
3. getMean - find the mean of elements currently presents in the array.
4. getMedian - find the median of elements currently present in the array, if the count of the numbers is even, take the average of the two middle elements.
5. getMode - find the mode of elements currently present in the array, if there is more than one potential element, assume that the mode is the smaller of all.

If the array is empty at the point a query is asked about a metric(mean, median, mode), print -1.

If any of the answers for the query is a fraction, let's say, P / Q in reduced form, the return the number $(P*Q^{-1})$ Modulo 1000000007.

Input Format

The first line of the input contains one integer T - the number of test cases. Then T test cases follow.
The first line of each test case contains one integer Q - the number of queries.
Each of the next Q lines contains a string S and integer X or just a string S - description of the query.

Output Format

For each test case, print the answer for the queries.

Constraints

$1 \le T \le 10^5$
$1 \le Q \le 10^5$
$1 \le x \le 10^9$
It is guaranteed that the sum of Q over all test cases does not exceed 10^5.

Sample Input 1

Copy

```
1
12
insert 4
insert 3
insert 5
getMean
getMedian
```

C++14[GCC]

Submit

```
1
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