Maximizing MEX AZ101

? Ask Doubt

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

Memory: 256 MB Accepted Submissions: 100

Description

You have an empty array A and a positive integer X. You are given Q queries with an integer Y, which you have to append to the array. In one move, you can change Y as: Y = Y + X or Y = Y - X, Y cannot become negative. You can perform this move multiple times. After each query, find the maximum MEX of the array.

The MEX of an array is the minimum excluded non-negative integer.

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 two space-separated integers Q X - the number of queries and value of X.

Each of the next lines contain one integer Y - the element you have to append in the array.

Output Format

For each test case, print the MEX for each query as space-separated integers.

Constraints

$1 \le T \le 10^5$

$1 \le Q \le 10^5$

$1 \le X \le 10^5$

$0 \le Y_i \le 10^9$

It is guaranteed that the sum of Q over all test cases does not exceed 10^5.

Sample Input 1

Copy

```
3
4 3
5
3
1
2
5 2
3
1
2
```

C++14[GCC]

Submit

```
1
```