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PROBLEMSET GROUPS RATING EDU API CALENDAR HELP RAYAN 🟋 CATALOG CONTESTS HOME TOP GYM

SUBMIT CODE MY SUBMISSIONS STATUS HACKS STANDINGS CUSTOM INVOCATION **PROBLEMS**

F. Maximum modulo equality

time limit per test: 5 seconds memory limit per test: 256 megabytes

You are given an array a of length n and q queries l, r.

For each query, find the maximum possible m, such that all elements a_l , a_{l+1} , ..., a_r are equal modulo m. In other words, $a_l \mod m = a_{l+1} \mod m = \cdots = a_r \mod m$, where $a \mod b$ — is the remainder of division a by b. In particular, when m can be infinite, print 0.

Input

The first line contains a single integer t ($1 \le t \le 10^4$) — the number of test cases.

The first line of each test case contains two integers n, q ($1 \le n, q \le 2 \cdot 10^5$) — the length of the array and the number of queries.

The second line of each test case contains n integers a_i ($1 \le a_i \le 10^9$) — the elements of the array.

In the following q lines of each test case, two integers l, r are provided ($1 \le l \le r \le n$) — the range of the query.

It is guaranteed that the sum of n across all test cases does not exceed $2 \cdot 10^5$, and the sum of q does not exceed $2 \cdot 10^{5}$.

Output

For each query, output the maximum value m described in the statement.

Example

input	Сору
3	
5 5	
5 14 2 6 3	
4 5	
1 4	
2 4	
3 5	
1 1	
1 1	
7	
1 1	
3 2	
1 7 8	
2 3	
1 2	
output	Сору
3 1 4 1 0	
0	
1 6	

Note

In the first query of the first sample, $6 \mod 3 = 3 \mod 3 = 0$. It can be shown that for greater m, the required condition will not be fulfilled.

In the third query of the first sample, $14 \mod 4 = 2 \mod 4 = 6 \mod 4 = 2$. It can be shown that for greater m. the required condition will not be fulfilled.

Codeforces Round 991 (Div. 3) **Finished Practice**

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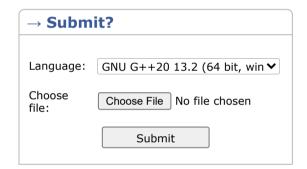
communicate with other person during a

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→ Virtual participation

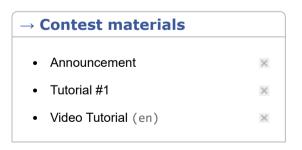
Start virtual contest





→ Last submissions		
Submission	Time	Verdict
<u>295467825</u>	Dec/08/2024 01:00	Accepted





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