



HOME TOP CONTESTS GYM PROBLEMSET GROUPS RATING API HELP KOTLIN HEROES Z DASHA Z CALENDAR

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS STANDINGS CUSTOM INVOCATION

E. Product Tuples

time limit per test: 8 seconds memory limit per test: 128 megabytes input: standard input output: standard output

While roaming the mystic areas of Stonefalls, in order to drop legendary loot, an adventurer was given a quest as follows. He was given an array $A=a_1,a_2,\ldots,a_N$ of length N, and a number K.

Define array B as B(q,A)= { $q-a_1,q-a_2,\ldots,q-a_N$ }. Define function F as F(B,K) being sum of products of all K-tuples of elements in array B. For example, if the array B is [2,3,4,5], and with K=3, sum of products of all 3-tuples is

$$F(B,3) = 2 * 3 * 4 + 2 * 3 * 5 + 3 * 4 * 5 + 2 * 4 * 5$$

He was then given a number Q, number of queries of two types:

- Type 1: Given q,i, and d calculate F(B(q,A),K) where we make change to initial array as A[i]=d.
- Type 2: Given q,L,R, and d calculate F(B(q,A),K) where we make change to initial array as A[i]=A[i]+d for all i in range [L,R] inclusive.

All changes are temporarily made to initial array, and don't propagate to following queries. Help the adventurer calculate the answer to a quest, and finally get that loot!

Input

In the first two lines, numbers N ($1 \leq N \leq 2*10^4$) and K ($1 \leq K \leq N$), the length of initial array A, and tuple size, followed by a_1,a_2,a_3,\ldots,a_N ($0 \leq a_i \leq 10^9$), elements of array A, in the next line. Then follows number Q ($Q \leq 10$), number of queries. In the next Q lines come queries of the form:

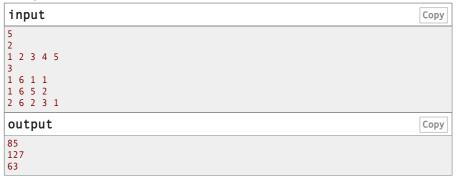
- 1 q i d, for type 1,
- 2 q L R d, for type 2,

as explained above ($0 \le q, d \le 10^9, 1 \le i, L, R \le N$)

Output

Print Q lines, the answers to queries, modulo 998244353.

Example



Note

In the first query array A = [1, 2, 3, 4, 5], B = [5, 4, 3, 2, 1], sum of products of 2-tuples = 85.

In second query array A = [1, 2, 3, 4, 2], B = [5, 4, 3, 2, 4], sum of products of 2-tuples = 127

In third query array A = [1, 3, 4, 4, 5], B = [5, 3, 2, 2, 1], sum of products of 2-tuples = 63

Bubble Cup 12 - Finals [Online Mirror, unrated, Div. 1]

Finished

Practice



→ Virtual participation

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Start virtual contest

→ Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest





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2019/9/18 Problem - E - Codeforces

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