时间限制：C/C++ 3秒，其他语言6秒
空间限制：C/C++ 262144K，其他语言524288K
64bit IO Format: %lld

题目描述

Bob invented a new operation $\otimes$

Let p_i denote the i-th prime number. If $x = \prod_i p_i^{a_i}$ and $y = \prod_i p_i^{b_i}$, then

$x \otimes y = \prod_i p_i^{|a_i - b_i|}$

Now Bob have a sequence $a_{1...n}$, he wants to calculate sequence $b_{1...n}$ satisfies:

$b_i = \sum_{1 \le j,k \le n, j \otimes k = i} a_j k^c$

The answer may be very large, you only need to output:

$(b_1 \mod 998244353)\ xor\ (b_2 \mod 998244353)\ ...\ xor\ (b_n \mod 998244353)$

XOR means bitwise exclusive OR

输入描述:

The first line has two integers n, c.

The second line has n integers $a_{1...n}$.

$1 \le n \le 10^6$

$0 \le a_i < 998244353$

$0 \le c \le 10^9$

输出描述:

Output the answer.

示例1

输入

```
6 1
1 2 3 4 5 6
```

输出

```
55
```