

## B. Sereja and Anagrams

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

Sereja has two sequences  $a$  and  $b$  and number  $p$ . Sequence  $a$  consists of  $n$  integers  $a_1, a_2, \dots, a_n$ . Similarly, sequence  $b$  consists of  $m$  integers  $b_1, b_2, \dots, b_m$ . As usual, Sereja studies the sequences he has. Today he wants to find the number of positions  $q$  ( $q + (m - 1) \cdot p \leq n$ ;  $q \geq 1$ ), such that sequence  $b$  can be obtained from sequence  $a_q, a_{q+p}, a_{q+2p}, \dots, a_{q+(m-1)p}$  by rearranging elements.

Sereja needs to rush to the gym, so he asked to find all the described positions of  $q$ .

### Input

The first line contains three integers  $n$ ,  $m$  and  $p$  ( $1 \leq n, m \leq 2 \cdot 10^5$ ,  $1 \leq p \leq 2 \cdot 10^5$ ). The next line contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $1 \leq a_i \leq 10^9$ ). The next line contains  $m$  integers  $b_1, b_2, \dots, b_m$  ( $1 \leq b_i \leq 10^9$ ).

### Output

In the first line print the number of valid  $q$ s. In the second line, print the valid values in the increasing order.

### Examples

input
5 3 1 1 2 3 2 1 1 2 3
output
2 1 3

  

input
6 3 2 1 3 2 2 3 1 1 2 3
output
2 1 2