

Task: ZAJ

Stutter

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As of recently, Bitie suffers from a strange condition: he keeps stuttering, and, moreover, the only words he utters are numbers. His older brother, Bytie, has noticed a peculiar regularity in Bitie's stutter. He suspects that Bitie is in fact simulating, so that he is excused from attending school, and may spend the time playing computer games. For Bytie, this is rather upsetting, as it prevents him from learning programming. Hence, Bytie is determined to expose his little brother for a fraud, hoping to gain as much time for programming as he desires.

Let us formalize Bytie's suspicions. Suppose we are given a sequence of numbers A .

- A *subsequence* of A is any sequence formed from A by removing arbitrary elements from it, e.g., 1, 1, 7, 5 is a subsequence of the sequence 1, 3, 1, 7, 6, 6, 5, 5.
- A *stutter* of A is any subsequence of A that consists of successive pairs of two equal elements, e.g., 1, 1, 1, 1, 3, 3 is a stutter of the sequence 1, 2, 1, 2, 1, 2, 1, 3, 3. (Another stutters of this sequence are 2, 2 and 1, 1, 2, 2. However, 2, 2, 2 and 1, 2, 1, 2 are *not* stutters of this sequence.)

Bytie promises a prize for determining, for given two sequences of numbers uttered by Bitie, what is the length of their longest common stutter, i.e., a sequence that is a stutter of both sequences.

Input

The first line of the input contains two integers, n and m ($n, m \geq 2$), separated by a single space, which are the lengths of the sequences A and B that represent Bitie's utterances. In the second line of input, there are n integers, a_1, a_2, \dots, a_n , separated by single spaces; these are the successive elements of the sequence A ($1 \leq a_i \leq 10^9$). In the third line of input, there are m integers, b_1, b_2, \dots, b_m , separated by single spaces; these are the successive elements of the sequence B ($1 \leq b_i \leq 10^9$).

Output

Your program should print a single non-negative integer to the output: the length of the longest common stutter of A and B . If no common stutter exists (or rather, it is empty), the correct answer is 0.

Example

For the input data:	the correct result is:
7 9	4
1 2 2 3 1 1 1	
2 4 2 3 1 2 4 1 1	

Explanation of the example: The longest common stutter is 2, 2, 1, 1.

Grading

Subset	Constraints	Score
1	$n, m \leq 2000$	30
2	$n, m \leq 15\,000$ and every number occurs at most twice within each sequence	28
3	$n, m \leq 15\,000$	42