



Challenge: Different Ones

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Difficulty: Medium

Submission Constraints:

- Time limit per test: **0.075 seconds**
- Memory limit per test: **Default (65 MB)**

Description

Amidst the rugged terrain of the Wild West, you stumble upon two sets of ammunition crates, each holding an array of bullets. The first array, represented by array "**a**," contains bullets of varying calibers, while the second array, represented by array "**b**", holds a different assortment of ammunition.

Your challenge is to determine if it's feasible to select exactly $k/2$ (**k** is given and it is a pair number) bullets from each array. However, there's a twist – among the chosen bullets, you must ensure that you've picked at least one of each caliber from **1** to **k**.

Your task is to devise a plan to raid both sets of ammunition crates in such a way that you gather precisely the required number of bullets from each, covering all calibers from **1** to **k**, as you prepare for the showdowns and gunfights.

Inputs

- The first line contains three integers separated by space: **n**: number of elements in the array "**a**", **m**: number of elements in the array "**b**", **k**: number of bullets to choose.
- The second line contains the **n** elements of the array "**a**"
- The third line contains the **m** elements of the array "**b**"



Outputs

- Print **1** if it's feasible, else print **0**

Constraints

- $1 \leq n, m \leq 10^6$
- $1 \leq k \leq 2 * \min(n, m)$

Examples

Input	Output
3 3 4 1 3 5 2 4 6	1
1 5 2 3 2 2 1 4 3	0