

Problem REPLACE: Replace

You are working for a gaming company. The game designers decided that technical descriptions for loading bars like “Extracting gfx files” do not help the gamer and are especially no fun. So they decided to replace them by funny stuff like “Feeding the minions” and use them randomly for different actions. But now the gamers get confused that “Digging the dungeon” takes longer than “Polishing the armor”. So the plan is to reconsider the times that real and the fake action take. The relative time between actions do not need to be correct, but the overall order should be correct. I.e. a real action which takes more time, should be described by a fake action which takes more time. And when two real actions take the same time, the according fake actions should take the same time. Before implementing this the designers want to make sure that the variety for the gamers is big enough still to be fun. So given times of the different loading actions and the times of the fake actions, you should calculate the number of possible different assignments of real actions to fake actions. Each assignment must assign a different fake action to every real action.

Input

The input starts with a line containing two integers. The number of real actions a and the number of fake actions f . Followed by a line of a integers, the times of the real actions, in the order they are executed. The last line contains f numbers: the time the fake actions take. All numbers are positive and smaller than 5 000.

Output

Output the number of possible assignments modulo 2 147 483 647.

Sample Input 1

```
3 4
1 2 3
10 20 30 40
```

Sample Output 1

```
4
```

Sample Input 2

```
4 5
4 7 5 4
2 1 2 7 8
```

Sample Output 2

```
2
```

Sample Input 3

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

Sample Output 3

```
0
```