HOME   TOP   CONTESTS   GYM   PROBLEMSET   GROUPS   RATING   API   HELP   HONORCUP🏆   CALENDAR

PROBLEMS   SUBMIT CODE   MY SUBMISSIONS   STATUS   HACKS   ROOM   STANDINGS   CUSTOM INVOCATION

B. Filling the Grid

time limit per test: 1 second
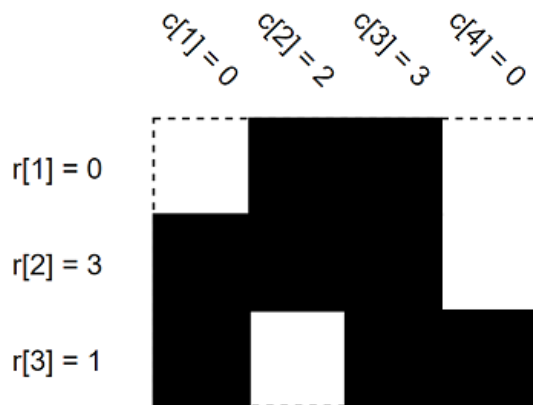memory limit per test: 256 megabytes
input: standard input
output: standard output

Suppose there is a $h \times w$ grid consisting of empty or full cells. Let's make some definitions:

- r_i is the number of consecutive full cells connected to the left side in the i-th row ($1 \leq i \leq h$). In particular, $r_i = 0$ if the leftmost cell of the i-th row is empty.
- c_j is the number of consecutive full cells connected to the top end in the j-th column ($1 \leq j \leq w$). In particular, $c_j = 0$ if the topmost cell of the j-th column is empty.

In other words, the i-th row starts exactly with r_i full cells. Similarly, the j-th column starts exactly with c_j full cells.

These are the r and c values of some 3×4 grid. Black cells are full and white cells are empty.

You have values of r and c. Initially, all cells are empty. Find the number of ways to fill grid cells to satisfy values of r and c. Since the answer can be very large, find the answer modulo 1000000007 $(10^9 + 7)$. In other words, find the remainder after division of the answer by 1000000007 $(10^9 + 7)$.

Input

The first line contains two integers h and w $(1 \leq h, w \leq 10^3)$ — the height and width of the grid.

The second line contains h integers $r_1, r_2, \ldots, r_h$ $(0 \leq r_i \leq w)$ — the values of r.

The third line contains w integers $c_1, c_2, \ldots, c_w$ $(0 \leq c_j \leq h)$ — the values of c.

Output

Print the answer modulo 1000000007 $(10^9 + 7)$.

Examples

```
input
3 4
0 3 1
0 2 3 0
```

```
output
2
```

```
input
1 1
0
1
```

Codeforces Round #589 (Div. 2)

Finished

Practice

⭐

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

[Start virtual contest]

→ Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ Clone Contest to Mashup

You can clone this contest to a mashup.

[Clone Contest]

→ Submit?

Language: GNU G++11 5.1.0 ▼

Choose file: 选择文件 未选择任何文件

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

[Submit]

→ Problem tags

combinatorics   implementation

No tag edit access

→ Contest materials

- Announcement (en)   ✕
- Tutorial (en)   ✕

output `Copy`

```
0
```
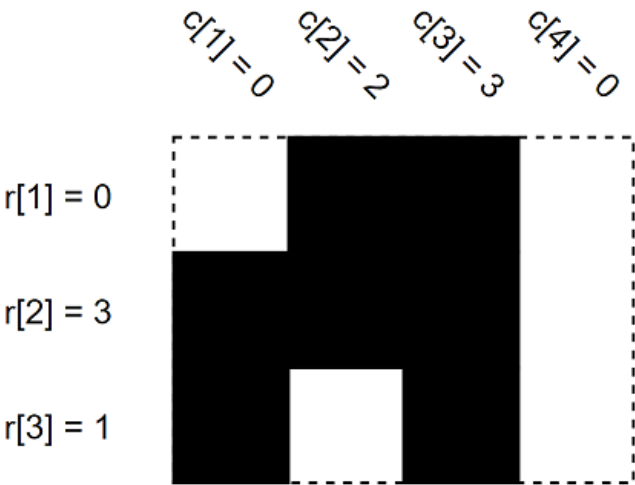
input `Copy`

```
19 16
16 16 16 16 15 15 0 5 0 4 9 9 1 4 4 0 8 16 12
6 12 19 15 8 6 19 19 14 6 9 16 10 11 15 4
```

output `Copy`

```
797922655
```

Note

In the first example, this is the other possible case.

In the second example, it's impossible to make a grid to satisfy such r, c values.

In the third example, make sure to print answer modulo $(10^9 + 7)$.