2975. Maximum Square Area by Removing Fences From a Field

Description

There is a large `(m - 1) x (n - 1)` rectangular field with corners at `(1, 1)` and `(m, n)` containing some horizontal and vertical fences given in arrays `hFences` and `vFences` respectively.

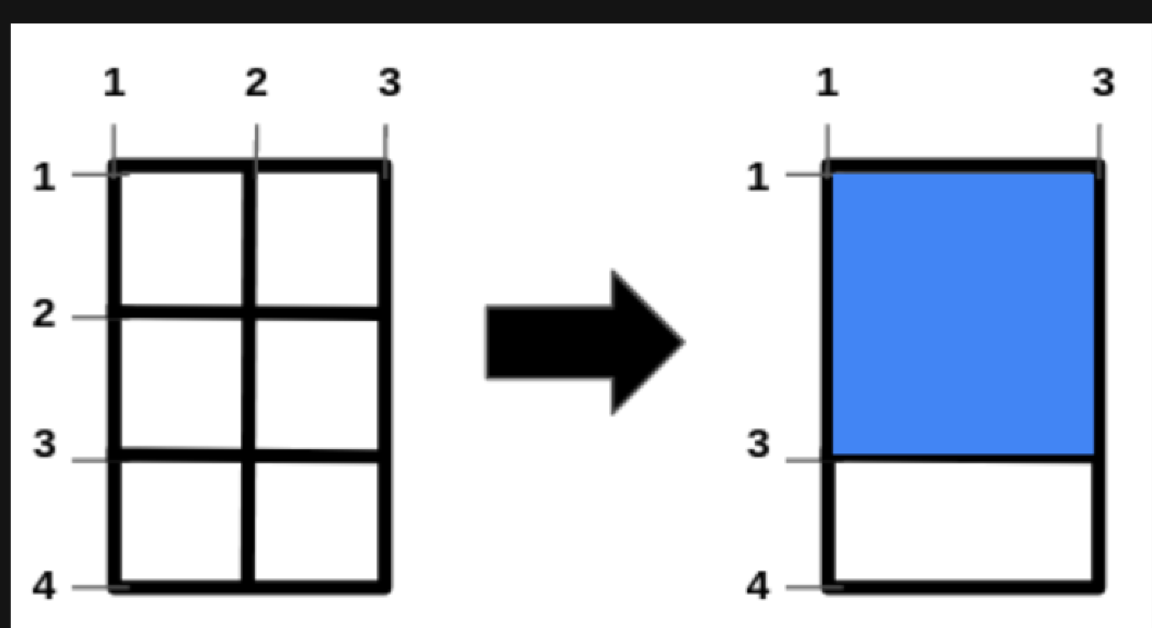
Horizontal fences are from the coordinates `(hFences[i], 1)` to `(hFences[i], n)` and vertical fences are from the coordinates `(1, vFences[i])` to `(m, vFences[i])`.

Return *the* ***maximum*** *area of a* ***square*** *field that can be formed by* ***removing*** *some fences (* ***possibly none*** *) or* `-1` *if it is impossible to make a square field*.

Since the answer may be large, return it **modulo** $10^9 + 7$.

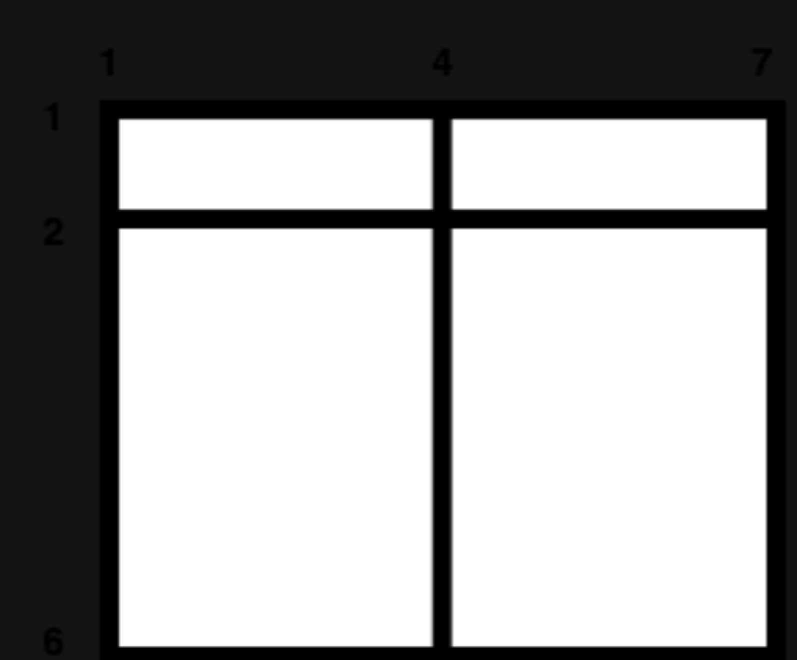
Note: The field is surrounded by two horizontal fences from the coordinates `(1, 1)` to `(1, n)` and `(m, 1)` to `(m, n)` and two vertical fences from the coordinates `(1, 1)` to `(m, 1)` and `(1, n)` to `(m, n)`. These fences **cannot** be removed.

Example 1:




```
Input: m = 4, n = 3, hFences = [2,3], vFences = [2]
Output: 4
Explanation: Removing the horizontal fence at 2 and the vertical fence at 2 will give a square field of area 4.
```

Example 2:




```
Input: m = 6, n = 7, hFences = [2], vFences = [4]
Output: -1
Explanation: It can be proved that there is no way to create a square field by removing fences.
```

Constraints:

- $3 \le m, n \le 10^9$
- `1 <= hFences.length, vFences.length <= 600`
- `1 < hFences[i] < m`
- `1 < vFences[i] < n`
- `hFences` and `vFences` are unique.