Fancy Hotel - D

Problem Description

There is a hotel with n floors and m rooms on each floor. All the rooms are occupied by a single male or female.
The hotel is "Fancy" if there is a way to rearrange the occupants such that each floor has either only female OR only male occupants.
Output whether the hotel is fancy or not.

Input format

First line contains the integers n and m.
n lines follow and each line contains m integers representing each of the m rooms on that floor
The number representing each room can be 0, 1 or -1 representing male, female or empty respectively.

Output format

Output "FANCY" if the hotel is fancy else print "NOT FANCY". Empty hotel is "FANCY".

Constraints

1 <= n
1 <= m
n*m <= 1e5

Sample input 1

```
5 4
1 0 0 0
0 1 1 0
1 0 1 1
1 0 0 1
0 1 1 0
```

Sample output 1

NOT FANCY

Sample Input 2

```
1 1
1
```

Sample Output 2

FANCY

Sample Input 3

```
6 1
1
0
0
1
0
0
```

Sample Output 3

FANCY

Sample input 4

```
7 1
1
0
0
1
0
-1
-1
```

Sample Output 4

FANCY