

# 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

$1 \leq n$   
 $1 \leq m$   
 $n * m \leq 1e5$

## 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