Octopuses with Watches

Time limit: *1000 ms*
Memory limit: *5120 KB*

IBM puzzlemaster asked, on March 2017 a challenge about eight octopuses where each one of them has eight watches.

Your challenge is to write a program for a generalization of the problem – to find the maximal number of watches that can be adjusted to either 3, 6, 9 or 12 according to the rules of the game.

Using a sequence of operations of two types:

1. Add an hour to all the watches of a single octopus.
2. Add an hour to a specific watch for all the octopuses.

and given the hour setting of $n \times m$ watches (m watches for each of the n octopuses) compute the maximal number of watches that can be adjusted to either 3, 6, 9 or 12.

Standard input

On the first line of the input there will be two integers n and m ($0 < n \leq m < 10$).

On the following n lines there will be m integers in the interval $[1, 12]$, each one representing the configuration of one of the watches.

Standard output

Output a single integer, the maximal number of watches that can be adjusted to either 3, 6, 9 or 12.

Constraints and notes

- $0 < n \leq m < 10$

Input	Output
8 8 1 2 3 4 5 6 7 8 2 4 6 8 10 12 2 4 3 6 9 12 3 6 9 12 4 8 12 4 8 12 4 8 5 10 3 8 1 6 11 4 6 12 6 12 6 12 6 12 7 2 9 4 11 6 1 8 8 4 12 8 4 12 8 4	43
3 4 3 1 4 1 5 9 2 6 5 3 5 8	10