

**Reminder:** in case of any technical issues, you can use the lightweight website [codeforc.es/menci/m1](https://codeforc.es/menci/m1), [codeforc.es/menci/m2](https://codeforc.es/menci/m2), [codeforc.es/menci/m3](https://codeforc.es/menci/m3).

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## C. Binary Table

time limit per test: 6 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

You are given a table consisting of  $n$  rows and  $m$  columns. Each cell of the table contains either 0 or 1. In one move, you are allowed to pick any row or any column and invert all values, that is, replace 0 by 1 and vice versa.

What is the minimum number of cells with value 1 you can get after applying some number of operations?

### Input

The first line of the input contains two integers  $n$  and  $m$  ( $1 \leq n \leq 20$ ,  $1 \leq m \leq 100\,000$ ) — the number of rows and the number of columns, respectively.

Then  $n$  lines follows with the descriptions of the rows. Each line has length  $m$  and contains only digits '0' and '1'.

### Output

Output a single integer — the minimum possible number of ones you can get after applying some sequence of operations.

### Example

#### input

```
3 4
0110
1010
0111
```

#### output

```
2
```

**CROC 2016 - Final Round**  
**[Private, For Onsite Finalists Only.]**

**Finished**

### → 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](#)

### → Problem tags

bitmasks brute force  
divide and conquer dp fft math  
\*2800

No tag edit access

### → Contest materials

- Announcement (en) X
- Tutorial (en) X

