

## 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

<b>input</b>	<a href="#">Copy</a>
<pre>3 4 0110 1010 0111</pre>	
<b>output</b>	<a href="#">Copy</a>
<pre>2</pre>	