



logs

100 points

Source code: `logs.c`, `logs.cpp`, `logs.pas`
Input files: `logs.in`
Output files: `logs.out`
Time limit: `0.6 s`
Memory limit: `64 MB`

Task

Given an $N \times M$ binary matrix, find the area of the biggest rectangle consisting entirely of values of `1`, knowing that you can permute the **columns** of the matrix.

Constraints

- $1 \leq N \leq 15000$
- $1 \leq M \leq 1500$
- 30% of the test cases will have $N, M \leq 1024$
- In C/C++, it is recommended that you use `fgets()` to read the input. In Pascal, it is recommended to use `readln()` on a text file that has a large buffer. The following sample code shows how to do this:

<i>C/C++</i>	<i>Pascal</i>
<pre>#define MAXM 1500 ... FILE *f = fopen("logs.in", "r"); char s[MAXM + 3]; fscanf(f, "%d %d\n", &n, &m); fgets(s, MAXM + 2, f);</pre>	<pre>var buf:array[1..65536] of char; s:array[1..1505] of char; f:text; ... assign(f, 'logs.in'); settextbuf(f, buf, 65536); reset(f); readln(f, n, m); readln(f, s);</pre>

At the end of these two pieces of code, `s` will contain the first line of the matrix.

Input

The first line of the input file `logs.in` will contain two integers separated by one space: `N` and `M`. The following `N` lines will contain `M` characters of `0` or `1`, describing the matrix.

Output

The only line of the output file `logs.out` will contain the area of the largest rectangle.



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Example

logs.in	logs.out	Explanation
10 6 001010 111110 011110 111110 011110 111111 110111 110111 000101 010101	21	By permuting the columns such that columns 2, 4 and 5 are adjacent you have a rectangle of area 21 (rows 2-8 and columns 2, 4, 5).