Problem F. Find The Sum For Subrectangles

Input file:	*standard input*
Output file:	*standard output*
Time limit:	4 seconds
Memory limit:	1024 mebibytes

Consider a rectangular board with H rows and W columns of square cells. Each cell contains either a digit (0–9) or an asterisk ("*"). The cell at the i-th row from the top and the j-th column from the left is denoted by (i, j).

In this problem, we consider subrectangles. A *subrectangle* is a set of cells which forms a rectangle. More precisely, a set of cells S is a subrectangle if there are four integers, t, b, ℓ, and r, such that $1 \le t \le b \le H$, $1 \le \ell \le r \le W$, and $S = \{(i, j) \mid t \le i \le b \wedge \ell \le j \le r\}$. A subrectangle is *digit-only* if every cell in the subrectangle contains a digit. The *score* of a digit-only subrectangle is defined as the square of the sum of digits in all cells of the subrectangle.

Your task is to calculate the sum of scores of all digit-only subrectangles. Since the answer may be large, output it modulo 998 244 353.

Input

The first line of input contains two integers, H and W: the height and width of the board ($1 \le H, W \le 2000$).

Each of the following H lines consists of W characters. Here, $A_{i,j}$ is the character in the cell (i, j), and it is either a digit between 0 and 9, inclusive, or an asterisk ("*"). You may assume that there is at least one digit-only subrectangle.

Output

Output a single line with a single integer: the sum of scores of all digit-only subrectangles modulo 998 244 353.

Examples

standard input	*standard output*
2 2 44 9*	346
2 3 314 28*	601
4 6 314159 2*6535 *89793 238*4*	37655

Note

In Sample Input 1, there are five digit-only subrectangles as illustrated below. The sum of their scores is $4^2 + 4^2 + 9^2 + (4 + 4)^2 + (4 + 9)^2 = 346$.