Gifts from Knowledge

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

After studying the paper *Solving Sparse Linear Systems Faster than Matrix Multiplication* by Richard Peng, and Santosh Vempala, Little Cyan Fish becomes obsessed with anything that is sparse. For example, a sparse matrix. Here, a sparse matrix refers to a matrix in which the number of zero elements is much higher than the number of non-zero elements. Now, Little Cyan Fish comes up with a problem about binary sparse matrices and he wants you to try solving it.

Given a binary matrix (a matrix containing only 0s and 1s) with r rows and c columns, you can choose whether to reverse each row or not. Find the number of ways to choose a set of rows to reverse (it is allowed not to choose any row), so that every column has at most one 1. Two ways are considered different if a row is chosen in one of them but not the other.

By reversing a row, we mean this: Let the elements on the i-th row be $b_{i,1}, b_{i,2}, \cdots, b_{i,c}$ from the first column to the last column. If you reverse the i-th row, it becomes $b_{i,c}, b_{i,c-1}, \cdots, b_{i,1}$.

Input

There are multiple test cases. The first line of the input contains an integer T indicating the number of test cases. For each test case:

The first line contains two integers r and c ($1 \le r, c \le 10^6$, $1 \le r \times c \le 10^6$) indicating the number of rows and columns of the matrix.

For the following r lines, the i-th line contains a string $b_{i,1}b_{i,2}\cdots b_{i,c}$ ($b_{i,j} \in \{0, 1\}$) where $b_{i,j}$ is the element on the i-th row and the j-th column of the matrix.

It's guaranteed that the sum of $r \times c$ of all test cases does not exceed 10^6.

Output

For each test case output one line containing one integer indicating the number of ways. As the answer might be large, print the answer modulo $(10^9 + 7)$.

Example

standard input	standard output
3 3 5 01100 10001 00010 2 1 1 1 2 3 001 001	4 0 2

Note

For the first sample test case, the set of selected rows can be empty, $\{1, 3\}$, $\{2\}$ or $\{1, 2, 3\}$. So the answer is 4.