# Turning Regrets Into Songs

| | |
|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 3 seconds |
| Memory limit: | 1024 megabytes |

Audience from the far-away E-sei galaxy are coming to the Earth to watch the same performance. However, this time they are facing some challenges...

The venue can be viewed as an $n \times m$ grid, which can hold exactly $n \times m$ people. There are also exactly $n \times m$ fans arriving, but due to some empty seats appearing in advance, the last column becomes full before all people have entered.

Suppose there are still $k$ empty seats in the audience. The next $k$ arriving spectators will each try to find a seat using the following strategy:

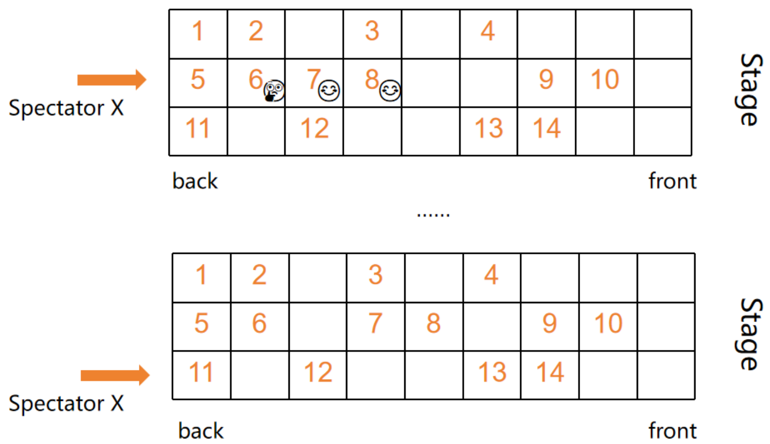
1. The spectator starts from row 1 and tells the last person in that row to "move forward". If there is someone in front of them, the message continues to be passed forward until either the first empty seat is found or it is determined that there is no empty seat in that row.

2. If an empty seat is found, starting from the spectator immediately behind that empty seat, each person should move forward. However, they may be impatient! Each spectator has a "patience level" $a$, and each time they have a probability of $\frac{a}{100}$ to move forward **by one position**, and a probability of $1 - \frac{a}{100}$ to stay still. If a spectator sees the person in front move, they will independently decide whether to move based on their own patience. The first spectator who refuses to move will stop the entire shifting process. The decisions of one spectator are independent.

3. After the movement ends, if the last position of the current row is empty, the spectator will take that seat. Otherwise, they will try row 2, row 3, ..., up to row $n$. If all rows are tried and no seat is found, the spectator leaves.

4. If the spectator successfully finds a seat, they will feel grateful and fully cooperate with the movement process. You may assume their patience is 100.

Here is an example and its corresponding illustration:




Suppose spectator X is trying to find an empty seat in row 2. First, the message will be passed continuously from spectator 5 to spectator 8. If spectators 8 and 7 cooperate and move forward, but spectator 6 does not cooperate, then spectator 8 and 7 will each move forward one seat, while spectator X will continue trying to find an empty seat in row 3.

You are given the patience levels of all spectators currently seated. Compute the expected number of spectators who will **fail to enter**.

## Input

The first line contains two integers $n, m$ ($1 \le n \le 50$, $2 \le m \le 50$).

The next $n$ lines each contain $m$ integers $a_{i,j}$ ($-1 \le a_{i,j} \le 100$), describing the seating:

- $a_{i,j} = -1$ means the seat on line $i$, column $j$ is empty.
- $a_{i,j} \neq -1$ means the seat is occupied, and the spectator has patience $a_{i,j}$.

**Note:** We consider the stage to be on the right side, so $a_{i,1}$ is the end (back) of the row, and $a_{i,m}$ is the front of the row. It is guaranteed that $a_{i,1} \neq -1$.

## Output

Output a single integer representing the expected number of spectators who **fail to enter**, modulo 998244353.

Formally, if the answer can be written as a fraction $\frac{p}{q}$, output an integer $x$ such that $x \cdot q \equiv p \pmod{998244353}$.

## Examples

| standard input | standard output |
|---|---|
| 2 2<br>80 -1<br>50 -1 | 988261910 |
| 1 4<br>25 -1 100 -1 | 499122178 |
| 3 3<br>50 70 -1<br>90 90 -1<br>25 -1 -1 | 828739792 |
| 4 6<br>46 -1 92 68 -1 -1<br>38 -1 50 -1 -1 -1<br>4 17 6 5 7 3<br>63 -1 64 -1 80 -1 | 51720353 |

## Note

In the first sample, the answer is $\frac{53}{100}$. In the second sample, the answer is $\frac{3}{2}$.

The explanation for the first sample is as follows: Let $X$ be the number of spectators who cannot enter. For the first spectator looking for a seat:

- With probability $\frac{4}{5}$, he successfully enter the empty seat in the first row. Then, with probability $\frac{1}{2}$, $X = 0$, and with probability $\frac{1}{2}$, $X = 1$.
- With probability $\frac{1}{5} \times \frac{1}{2} = \frac{1}{10}$, he successfully enter the empty seat in the second row. Then, with probability $\frac{4}{5}$, $X = 0$, and with probability $\frac{1}{5}$, $X = 1$.
- With probability $\frac{1}{5} \times \frac{1}{2} = \frac{1}{10}$, he fail to find a seat. Then, with probability $\frac{4}{5} + \frac{1}{5} \times \frac{1}{2} = \frac{9}{10}$, $X = 1$, and with probability $\frac{1}{10}$, $X = 2$.

The expected value of $X$ is $\frac{4}{5} \times (1 \times \frac{1}{2}) + \frac{1}{10} \times (1 \times \frac{1}{5}) + \frac{1}{10} \times (1 \times \frac{9}{10} + 2 \times \frac{1}{10}) = \frac{53}{100}$.