

# Fibonacci Matrix

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**Time Limit:** 5.0s   **Memory Limit:** 256M

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Calculate the  $N \times N$  matrix  $R$  equal to

$$\left( \sum_{i=0}^K f_i^2 \cdot M^i \right) \pmod{998244353},$$

where  $f_i$  is the  $i^{\text{th}}$  Fibonacci number,  $f_0 = f_1 = 1$ ,  $K$  is a positive integer, and  $M$  is a given matrix of integers.

## Input

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The first line contains positive integer  $N$ , denoting the number of rows and columns in the matrix  $M$ . The second line contains the integer  $K$ .

Matrix  $M$  is described by the next  $N$  lines, each containing  $n$  integers separated by spaces.

- $1 \leq N \leq 50$
- $1 \leq K < 10^{18}$
- $0 \leq M_{ij} \leq 998244353$

## Output

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Print matrix  $R$  in  $n$  lines, each containing  $n$  integers.

## Example

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Input 1:

```
1
5
1
```

Output 1:

```
104
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