F - Path to Integer

Editorial (/contests/abc402/tasks/abc402_f/editorial)

/

Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 525 points

Problem Statement

There is an $N \times N$ grid. Let cell (i, j) denote the cell in the i-th row from the top and j-th column from the left. Each cell contains a digit from 1 to 9; cell (i, j) contains $A_{i,j}$.

Initially, a token is on cell $(1, 1)$. Let S be an empty string. Repeat the following operation $2N - 1$ times:

- Append to the end of S the digit in the current cell.
- Move the token one cell down or one cell to the right. However, do not move it in the $(2N - 1)$-th operation.

After $2N - 1$ operations, the token is on cell (N, N) and the length of S is $2N - 1$.

Interpret S as an integer. The score is the remainder when this integer is divided by M.

Find the maximum achievable score.

Constraints

- $1 \leq N \leq 20$
- $2 \leq M \leq 10^9$
- $1 \leq A_{i,j} \leq 9$
- All input values are integers.

Input

The input is given from Standard Input in the following format:

$$
\begin{array}{llll}
N & M & & \\
A_{1,1} & A_{1,2} & \ldots & A_{1,N} \\
A_{2,1} & A_{2,2} & \ldots & A_{2,N} \\
\vdots & & & \\
A_{N,1} & A_{N,2} & \ldots & A_{N,N}
\end{array}
$$

Output

Print the answer.

Sample Input 1 Copy

```
2 7
1 2
3 1
```

Sample Output 1 Copy

```
5
```

There are two ways to move the token:

- Move through $(1,1), (1,2), (2,2)$. Then $S = 121$, and the score is the remainder when 121 is divided by 7, which is 2.
- Move through $(1,1), (2,1), (2,2)$. Then $S = 131$, and the score is the remainder when 131 is divided by 7, which is 5.

The maximum score is 5, so print 5.

Sample Input 2 Copy

```
3 100000
1 2 3
3 5 8
7 1 2
```

2026-01-02 (Fri) 05:22:44 +11:00

Sample Output 2 Copy

```
13712
```

Copy

Sample Input 3 Copy

```
5 402
8 1 3 8 9
8 2 4 1 8
4 1 8 5 9
6 2 1 6 7
6 6 7 7 6
```

Copy

Sample Output 3 Copy

```
384
```

Copy

/#telegram)

♯url=https%3A%2F%2Fatcoder.jp%2Fcontests%2Fabc402%2Ftasks%2Fabc402_f%3Flang%3Den&title=F%20-

2026-01-02 (Fri)
05:22:44 +11:00