

---

**Digits in optimal order****P46547\_en**Examen parcial d'Algorísmia, FME (2020-11-06)

---

Given two natural numbers  $m$  and  $n$ , you must construct a number  $x$  using the digits  $\{1, \dots, n\}$  (exactly one of each) such that no (non-empty) prefix of  $x$  is a multiple of  $m$ . For example, with  $m = 3$  and  $n = 4$ ,  $x = 2314$  is not a valid order, because 231 is a multiple of 3. In contrast,  $x = 4312$  is a valid order, because neither 4, nor 43, nor 431, nor 4312 are multiples of 3.

Moreover, you have a matrix  $M[1..n][1..n]$  such that  $M[i][j]$  contains the prize that is obtained if digit  $j$  is placed immediately to the right of digit  $i$ . Maximize the total sum of the prizes.

**Input**

The input consists of several cases. Each case starts with  $m$  and  $n$ , followed by  $M$ :  $n$  rows, each with  $n$  natural numbers between 1 and  $10^6$ , except for the diagonal, that is filled with zeros. You can assume that  $3 \leq m \leq 1000$  and  $2 \leq n \leq 9$ .

**Output**

For each case, print the maximum possible prize. If no  $x$  can be constructed, print 0.

**Sample input**

```
10 2
0 4
3 0

6 2
0 1000000
1 0

3 3
0 7 7
7 0 7
7 7 0

3 4
  0  1  2  3
1000 0  4 2000
   5  6  0   7
   8  9  1   0
```

**Sample output**

```
4
1
0
18
```

**Problem information**

Author : Salvador Roura

Translator : Albert Oliveras

Generation : 2026-01-07 22:59:29

© Jutge.org, 2006–2026.

<https://jutge.org>