Contest Duration: 2025-05-24(Sat) 08:00 (http://www.timeanddate.com/worldclock/fixedtime.html? iso=20250524T2100&p1=248) - 2025-05-24(Sat) 09:40 (http://www.timeanddate.com/worldclock/fixedtime.html? iso=20250524T2240&p1=248) (local time) (100 minutes) Back to Home (/home)

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D - Domino Covering XOR

Editorial (/contests/abc407/tasks/abc407_d/editorial)



Time Limit: 2 sec / Memory Limit: 1024 MB

 ${\it Score:}\,425\,{\it points}$

Problem Statement

There is a grid with H rows and W columns. Let (i,j) denote the cell at the i-th row from the top $(1 \le i \le H)$ and the j-th column from the left $(1 \le j \le W)$.

Cell (i,j) $(1 \leq i \leq H, 1 \leq j \leq W)$ has a non-negative integer $A_{i,j}$ written on it.

Let us place zero or more dominoes on the grid. A domino covers two adjacent cells, namely one of the following pairs:

- cells (i, j) and (i, j + 1) for $1 \le i \le H, 1 \le j < W$;
- cells (i,j) and (i+1,j) for $1 \le i < H, 1 \le j \le W$.

No cell may be covered by more than one domino.

For a placement of dominoes, define its **score** as the bitwise XOR of all integers written in cells **not** covered by any domino.

Find the maximum possible score.

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▶ What is bitwise XOR?

Constraints

- $1 \leq H$
- $1 \leq W$
- $HW \leq 20$
- $0 \le A_{i,j} < 2^{60} (1 \le i \le H, \ 1 \le j \le W)$
- All input values are integers.

Input

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

Output

Output the answer.

Sample Input 1 Copy

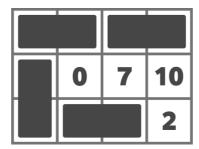
```
3 4
1 2 3 8
4 0 7 10
5 2 4 2
```

Sample Output 1 Copy

The grid is as follows:

1	2	3	8
4	0	7	10
5	2	4	2

For example, the placement below yields a score of 15.



No placement achieves a score of 16 or higher, so output 15.



1 11 1 2 4 8 16 32 64 128 256 512 1024

Sample Output 2 Copy

2047

You may also choose to place no dominoes.

Sample Input 3 C

Copy
74832 16944 58683 32965 97236
52995 43262 51959 40883 58715
13846 24919 65627 11492 63264
29966 98452 75577 40415 77202

Sample Output 3 Copy

131067

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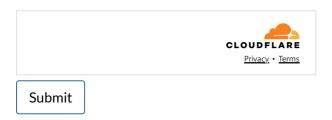
Language

Python (CPython 3.11.4)

Source Code



- * at most 512 KiB
- * Your source code will be saved as Main. extension.



#telegram)

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