Task 5

Rice Crackers

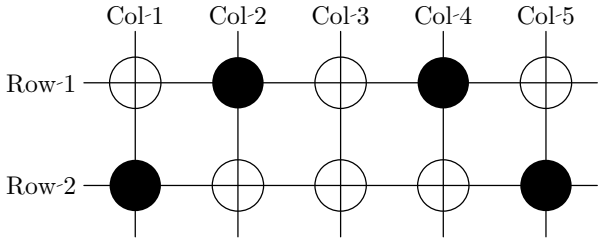
Task

Since its foundation, IOI Confectionery has been making rice crackers in a traditional style, where one side of crackers is char-grilled for a certain period of time, then they are turned, and the other side is char-grilled for a certain period of time. Though they keep the tradition. they now use an automated grilling machine to make crackers. Inside this machine, crackers are arranged in a grid with R rows and C columns ($1 \leq R \leq 10$, $1 \leq C \leq 10000$). The machine is usually operated automatically, and all the crackers are turned at the same time when one side is grilled for the right amount of time.

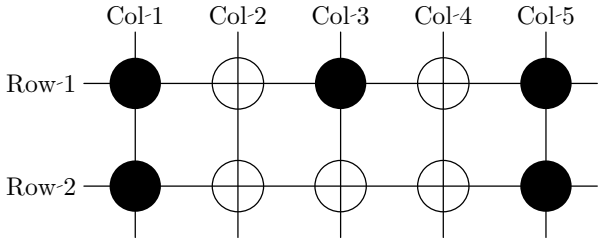
One day they were right in the middle of the grilling process and about to turn the crackers when an earthquake occurred and some of the crackers were turned inadvertently. Fortunately, the charcoals were in a good state. They switched the machine to the manual operation at once to turn only the crackers that were not already turned; otherwise one side of the crackers will be grilled for too long and they cannot be shipped as products. This machine is capable of turning one or more rows at the same time or one or more columns at the same time, but not capable of turning just one cracker.

If they spend too much time to turn the crackers, the crackers will be burned too much and not suitable for shipping. They decided to first turn some rows and then turn some columns so that they would maximize the number of *ready-to-ship* crackers, or the crackers both of whose sides would be suitably grilled without overgrilling one side. They can choose not to turn any rows, and they can also choose not to turn any columns. Write a program which computes the maximum number of ready-to-ship crackers.

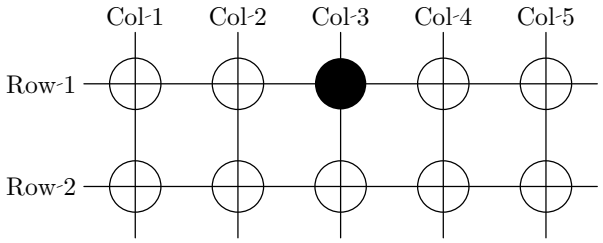
For example, suppose the crackers were turned as in the following figure by the earthquake. The black circles represent crackers which are not yet turned and the white circles represent crackers which are already turned.



After row 1 is turned, the crackers are as in the following figure.



Further turning columns 1 and 5 results in the following state. In this case, there are 9 ready-to-ship crackers.



Hint

The upper bound of R is 10, which is smaller than the upper bound 10000 of C.

Input

Line 1 of the input file contains two space-separated integers R and C ($1 \leq R \leq 10$, $1 \leq C \leq 10000$). The following R lines specify the state of crackers just after the earthquake. Line $i + 1$ ($1 \leq i \leq R$) contains C space-separated integers $a_{i,1}, a_{i,2}, \ldots, a_{i,C}$, where $a_{i,j}$ specifies the state of the cracker at row i, column j. It is not yet turned if $a_{i,j}$ is 1, and it is already turned if $a_{i,j}$ is 0.

Output

Each output file to submit consists of one line, and the line contains the maximum number of ready-to-ship crackers.

Sample inputs and outputs

Sample input 1

```
2 5
0 1 0 1 0
1 0 0 0 1
```

Sample input 2

```
3 6
1 0 0 0 1 0
1 1 1 0 1 0
1 0 1 1 0 1
```

Sample output 1

```
9
```

Sample output 2

```
15
```