Game of treasures   X26415_en
GRAU-PRO1, FIB (2013-12-16)

The Game of treasures is a two player's game that is played on a board with n rows and m columns, for some odd number n. Every cell in the board holds an integer value. When a player reaches a cell, if the cell's value is positive the player has found a treasure of the indicated value. A negative value indicates the number of turns that the player has to spend unsuccessfully in the cell looking for a treasure.

Player 1 starts the walk at cell $(0,0)$ and goes through the board by rows in zig-zag: row 0 to the right, from $(0,0)$ to $(0, m-1)$; row 1 to the left, from $(1, m-1)$ to $(1,0)$; and so on.

Player 2 starts the walk at cell $(n-1, m-1)$ and goes through the board by rows in zig-zag: row $n-1$ to the left, from $(n-1, m-1)$ to $(n-1,0)$; row $n-2$ to the right, from $(n-2,0)$ to $(n-2, m-1)$ and so on.

The players play in turns. The game starts with a move of the first player, accessing the information on cell $(0,0)$. Next turn is for player 2, that moves to cell $(n-1, m-1)$, accessing the corresponding information. From this point on the players alternate turns, and move following their respective walks or wait.
When a player reaches a cell holding a treasure, the value of the treasure is accumulated in its count, and the player is allowed to move to the next cell (in the designed walk) in its next turn. When a player reaches a cell holding a negative value, the player is not allowed to change cell for the indicated number of turns. The game finishes when a player cannot move to its next position because it is occupied by the other player.

Once the game is finished the winner is the player that has higher accumulated value from the treasures found. In the case that both players have found the same amount, the winner is the player that has passed through most cells. If there is still a tie, the winner is the player which cannot advance to its next position.

Input

The input is formed by a natural number $k > 0$ followed by k board configurations. A board configuration starts with two positive integers $n > 0$ and $m > 0$, where n is an odd number, followed by $n \times m$ integer values. In any configuration there are at least two cells.

Output

Print, for every given board configuration, which player wins, the total value of the treasures that the winner found, and the number of cells visited by the winner.

Sample input

```
7

1 10
10 -8 2 2 2 2 2 2 2

3 1
1
5
1

1 4
1 4 5 1

1 3
-1 1 0

3 2
1 1
2 3
1 1

3 2
1 1
1 1
1 1

5 8
 1 -2  0  0  1  2  3 -2
 2  2 -3  2  2  2 -1  0
 1  1  1  1  1  1  1  1
-2 -2 -2 -2 -2  2  2  2
 3  0  1 -1  0  7  2  9
```

Sample output

```
2: 16 8
1: 6 2
2: 6 2
2: 1 2
1: 5 3
1: 3 3
2: 30 18
```

Problem information

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