# Problem A. Dull Chocolates

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|---|---|
| Input file: | `dull.in` |
| Output file: | `standard output` |
| Time limit: | 9 seconds |
| Memory limit: | 1024 megabytes |

Fouad wants to eat a chocolate bar, so he bought a rectangular chocolate bar that has $N$ rows and $M$ columns of chocolate.

Fouad found that most of the cells in that chocolate bar are dark chocolate except for $K$ cells which are white chocolate. Now, he wants to eat a prefix sub-grid of the bar. A prefix sub-grid is a rectangular sub-grid that starts at the first cell $(1, 1)$ and ends at any cell $(i, j)$. Fouad is also wondering how many perfect prefix sub-grids of the bar. A perfect prefix sub-grid is a one that contains an odd number of white chocolate cells.

Help Fouad find the number of perfect prefix sub-grids and non-perfect prefix sub-grids.

## Input

The first line of the input containing a single integer $T$ specifying the number of test cases.

Each test case begins with a line containing three integers $N$, $M$, and $K$ ($1 \leq N, M \leq 10^9$, $0 \leq K \leq 10^3$), in which $N$ and $M$ are the number of rows and columns in the chocolate bar, respectively, and $K$ is the number of white chocolate cells.

Then $K$ lines follow, each line containing two integers $X_i$ and $Y_i$ ($1 \leq X_i \leq N$, $1 \leq Y_i \leq M$), giving the positions of the white chocolate cells. It is guaranteed that all the given positions are unique.

## Output

For each test case, print a single line containing two space-separated integers representing the number of perfect prefix sub-grids and non-perfect prefix sub-grids, respectively.

## Example

| dull.in | standard output |
|---|---|
| 3<br>3 3 0<br>3 3 1<br>2 2<br>5 5 5<br>1 5<br>2 1<br>3 3<br>4 2<br>5 4 | 0 9<br>4 5<br>14 11 |

## Note

In the second test case, the chocolate bar can be represented as follows:

ddd
dwd
ddd

in which '`d`' represents dark chocolate cells while '`w`' represents white chocolate cells. There are four perfect prefix sub-grids that end at cells: $(2, 2)$, $(2, 3)$, $(3, 2)$, and $(3, 3)$.