

# Well Placed Knights

Given a number  $N$  and  $M$  coordinates, print the maximum number Knights that can be placed on an  $N \times N$  chessboard excluding the  $M$  given cells such that no two of them can attack each other.

To know about a chess knight click [the link](#)

## Input Format

The first line contains  $T$ , The number of testcases.

The first line in each testcase has two integers,  $N$  and  $M$

The next  $M$  lines of the testcase has two integers,  $r_i$   $c_i$  denoting row and column of the cell which is blocked (shouldn't place a knight there).

## Constraints

$$1 \leq T \leq 20$$

$$1 \leq N \leq 100$$

$$0 \leq M \leq N \times N$$

$$1 \leq r_i, c_i \leq N$$

$$(r_i, c_i) \neq (r_j, c_j) \forall i \neq j$$

## Output Format

For each testcase, print the case number and the answer as in the sample output

## Sample Input 0

```
4
3 0
3 1
2 2
5 3
3 1
1 1
2 3
8 4
3 3
4 1
5 3
6 1
```

## Sample Output 0

```
Case #1: 5
Case #2: 4
Case #3: 11
Case #4: 30
```

Explanation 0

For test case 4, a possible placement of knights would look like this.

