# Problem K. Color Graph

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|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 2 seconds |
| Memory limit: | 256 megabytes |

You are given a simple graph with $\mathbf{N}$ vertices and $\mathbf{M}$ edges. A simple graph is an undirected graph that has no self-loops (edges connected at both ends to the same vertex) and no more than one edge between any two different vertices. Initially, each edge is colored white. Each round you can pick a white edge and paint it in red. You are not allowed to generate an odd-length cycle that consists only of red edges. What's the maximum number of edges that can be painted to red?

## Input

The first line of the input gives the number of test case, $\mathbf{T}$ ($1 \leq \mathbf{T} \leq 30$). $\mathbf{T}$ test cases follow.

For each case, the first line contains only two integers $\mathbf{N}$ and $\mathbf{M}$ ($2 \leq \mathbf{N} \leq 16$, $1 \leq \mathbf{M} \leq \mathbf{N}(\mathbf{N}-1)/2$). The i-th line of the next $\mathbf{M}$ lines describes the i-th edge: two integers $u$, $v$ denotes an edge between $u$ and $v$. It's guaranteed that there are no self-loops and multiple edges.

## Output

For each test case, output one line containing "Case #x: y", where x is the test case number (starting from 1) and y is the maximum number of edges that can be painted to red.

## Example

| standard input | standard output |
|---|---|
| 2<br>4 5<br>1 2<br>1 3<br>1 4<br>2 4<br>3 4<br>5 6<br>1 2<br>2 3<br>3 1<br>1 4<br>4 5<br>3 5 | Case #1: 4<br>Case #2: 5 |