

Billboard

The manager of the International Popcorn-Selling Company has just decided that a number of advertising billboards should be installed throughout the city. The city consists of a number of crossings connected by (bidirectional) streets. Crossings are numbered by integers $1..N$.

There should be one billboard at every crossing. However, to cut down expenses, there have been only three types of billboards printed. Nevertheless, the billboards should be arranged in such a way that one never meets the same billboard twice in a row when driving through the city (suppose that it is possible to turn back only at the crossing). How should they be installed?

Input specification

The input file starts with a line containing the number of test cases. Every test case starts with a line containing two (blank separated) integers $N(1 \leq N \leq 600)$, $M(1 \leq M \leq 10000)$ where N is the number of crossings and M is the number of streets. Each of the next M lines contains two integers x, y , indicating a street connecting crossings x and y .

Output specification

The output file contains a sequence of N numbers delimited by whitespace for every test case. The i -th member of this sequence denotes the type of the billboard at the crossing i (assume that the types of the billboards are numbered 1,2,3). If it is not possible to install the billboards in the described manner, the sequence consists of a single number -1.

Note that it is not necessary to write the entire sequence in one line. To prevent the problems with the mailer you may split long lines into several shorter ones.

Example

Input file:

```
2
6 7
1 3
1 4
5 2
2 6
4 2
3 4
6 3
5 8
1 2
1 5
1 3
2 5
2 3
5 3
3 4
4 5
```

Output file:

```
1 2 2 3 3 1
```

