Problem F
Vector Addition in XOR-land

The ACM Company recently decided to extend their business to a scenery tribe named XOR-land in a nearby galaxy. As the name suggests, people in XOR-land use bitwise exclusive-OR $\oplus$ as a replacement of the arithmetic addition. For example, the result of $12 \oplus 4$ is 8.

Given a set of n-dimensional integer vectors $v_1, v_2, \ldots, v_m$, the ACM Company would like you to calculate the result of $v_1 \oplus v_2 \oplus \ldots \oplus v_m$.

Technical Specification

1. $1 \leq n, m \leq 100$
2. The coordinates of the input vectors are integers between 0 and 10^6.

Input Format

First line of the input contains an integer t ($t \leq 15$) denoting the number of test cases. For each test case, the first line contains two integer n and m, denoting there are m n-dimensional integer vectors. Each of the following m lines contains n integers, denoting the coordinates of that vector.

Output Format

For each test case, print the resulting vector in a line.

Sample Input

```
1
4 2
4 8 12 3
8 4 12 2
```

Sample Output for the Sample Input

```
12 12 0 1
```