

Easy Graph

Given an undirected graph which contains n vertices and m edges. Find the adjacent matrix for the given graph.

Input

The first line contains two integers n and m ($1 \leq n \leq 1000, 0 \leq m \leq \min(10^5, n*(n-1)/2)$)

Each line in the next m lines contains three integers u, v and w (the edge between the two vertices u and v is weighted w). ($1 \leq u, v, w \leq n$). It is sure that there is at most one edge between any two vertices.

Output

The required matrix

Example

Input:

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

Output:

```
0 2 0
2 0 3
0 3 0
```