Problem G: Graph Cut of Maximum XOR Weight
Time Limit: 5 seconds

Description

A cut is a partition of the vertices of a graph into two disjoint subsets. Any cut creates a cut-set, the set of edges that have one endpoint in each subset of the partition. Let **V**(cut-set) denote the XOR of all the weights on all the edges in the cut-set. In this problem you will start with an empty graph with **n** nodes. A number of weighted edges will be successively added to the graph. After the addition of each weighted edge, output the value of the maximum XOR cut, such that **V**(cut-set) is maximized!

Input

A number of of inputs (≤**100**) with the following format.
The first two integers **n, m** represent the number of points in the graph and the total number of edges to be added successively. Next, we have **m** lines, with **x**, **y**, **w** where (**x**, **y**) is the undirected the edge of weight **w**. **w** will be given in binary form listed from the highest binary bit to lowest binary bit.
Note that $1 \le \mathbf{n} \le 500$, $1 \le \mathbf{m} \le 1000$, $0 \le \text{length}(\mathbf{w}) \le 1000$, $1 \le \mathbf{x}, \mathbf{y} \le \mathbf{n}$.

Output

For each edge, output the value of the maximum XOR cut in binary form (from high bit to low bit).

Sample Input

```
3 6
1 2 11
1 2 11
3 3 1110
1 3 1011011
1 2 10111
2 3 1110110
```

Sample Output

```
11
0
0
1011011
1011011
1100001
```