Problem E. Edges, Colors and MST

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	1024 mebibytes

There is an undirected simple connected graph G with N vertices and M edges. The vertices of G are numbered from 1 to N, and the edges are numbered from 1 to M. Edge i connects vertices u_i and v_i.

Given is a sequence $C = (c_1, c_2, \ldots, c_M)$ of length M, consisting of `0`s and `1`s. Edge i is painted blue when $c_i = 0$, and is painted red when $c_i = 1$. The edges are colored in such a way that there are exactly $N - 1$ red edges and they are forming a spanning tree of G.

Find the lexicographically smallest permutation $P = (p_1, p_2, \ldots, p_M)$ that satisfies the following condition: if, for each i, the weight of edge i is p_i, then all the edges used in the minimal spanning tree of G are red.

Note that the minimal spanning tree of G is uniquely determined under those conditions.

Input

The first line of input contains two integers N and M: the number of vertices and edges in graph G, respectively ($2 \le N \le 2 \cdot 10^5$, $N - 1 \le M \le 2 \cdot 10^5$).

The following M lines contain descriptions of the edges. Each description contains three integers a_i, b_i and c_i ($1 \le a_i, b_i \le N$, $0 \le c_i \le 1$): the vertices that are connected by this edge and the color of the edge (red if $c_i = 1$ and blue otherwise).

You may assume that there are no multiple edges nor loops, that the given graph is connected, and that the red edges are forming a spanning tree of the given graph.

Output

Print M integers that form the lexicographically smallest permutation P that satisfies the following condition: if, for each i, the weight of edge i is p_i, then all the edges used in the minimal spanning tree of G are red.

Example

standard input	*standard output*
4 5 1 2 0 2 3 1 3 4 1 2 4 0 1 3 1	3 1 4 5 2