You are given an undirected weighted graph with n vertices and m edges. Consider all shortest paths between vertices 1 and n, for any vertex like v ($1 \leq v \leq n$) say that if v is in either all shortest paths or some of them or none of them.

Input

First line contains two integers n, m, the number of graph's vertices and edges. Each of the following m lines contains v_i, u_i and w_i separated by space describing graph's ith edge's vertices(v_i, u_i) and its weight (w_i).

$1 \leq n \leq 2 \times 10^5$
$1 \leq m \leq 3 \times 10^5$
$1 \leq v_i, u_i \leq n$
$1 \leq w_i \leq 10^9$

It is guaranteed that there is no multiple edges or self loops in the graph.

Also it is guaranteed that the graph is connected.

Output

Print n lines, ith line contains either *all* if vertex i is in all shortest paths between 1 to n or *some* if vertex i is in some of shortest paths or *none* otherwise.