D. Edges in MST

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given a connected weighted undirected graph without any loops and multiple edges.

Let us remind you that a graph's spanning tree is defined as an acyclic connected subgraph of the given graph that includes all of the graph's vertexes. The weight of a tree is defined as the sum of weights of the edges that the given tree contains. The minimum spanning tree (**MST**) of a graph is defined as the graph's spanning tree having the minimum possible weight. For any connected graph obviously exists the minimum spanning tree, but in the general case, a graph's minimum spanning tree is not unique.

Your task is to determine the following for each edge of the given graph: whether it is either included in **any** MST, or included **at least in one** MST, or **not included in any** MST.

Input

The first line contains two integers n and m ($2 \le n \le 10^5$,) — the number of the graph's vertexes and edges, correspondingly. Then follow m lines, each of them contains three integers — the description of the graph's edges as "a_i b_i w_i" ($1 \le a_i, b_i \le n$, $1 \le w_i \le 10^6$, $a_i \ne b_i$), where a_i and b_i are the numbers of vertexes connected by the i-th edge, w_i is the edge's weight. It is guaranteed that the graph is connected and doesn't contain loops or multiple edges.

Output

Print m lines — the answers for all edges. If the i-th edge is included in any MST, print "`any`"; if the i-th edge is included at least in one MST, print "`at least one`"; if the i-th edge isn't included in any MST, print "`none`". Print the answers for the edges in the order in which the edges are specified in the input.

Examples

input

```
4 5
1 2 101
1 3 100
2 3 2
2 4 2
3 4 1
```

output

```
none
any
at least one
at least one
any
```

input

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

output

```
any
any
none
```

input

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

output

```
at least one
at least one
at least one
```

Note

In the second sample the MST is unique for the given graph: it contains two first edges.

In the third sample any two edges form the MST for the given graph. That means that each edge is included at least in one MST.