D. Mr. Kitayuta's Colorful Graph

time limit per test: 4 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Mr. Kitayuta has just bought an undirected graph with n vertices and m edges. The vertices of the graph are numbered from 1 to n. Each edge, namely edge i, has a color c_i, connecting vertex a_i and b_i.

Mr. Kitayuta wants you to process the following q queries.

In the i-th query, he gives you two integers - u_i and v_i.

Find the number of the colors that satisfy the following condition: the edges of that color connect vertex u_i and vertex v_i directly or indirectly.

Input

The first line of the input contains space-separated two integers - n and $m(2 \leq n \leq 10^5, 1 \leq m \leq 10^5)$, denoting the number of the vertices and the number of the edges, respectively.

The next m lines contain space-separated three integers - a_i, $b_i(1 \leq a_i < b_i \leq n)$ and $c_i(1 \leq c_i \leq m)$. Note that there can be multiple edges between two vertices. However, there are no multiple edges of the same color between two vertices, that is, if $i \neq j, (a_i, b_i, c_i) \neq (a_j, b_j, c_j)$.

The next line contains a integer- $q(1 \leq q \leq 10^5)$, denoting the number of the queries.

Then follows q lines, containing space-separated two integers - u_i and $v_i(1 \leq u_i, v_i \leq n)$. It is guaranteed that $u_i \neq v_i$.

Output

For each query, print the answer in a separate line.

Examples

input
4 5 1 2 1 1 2 2 2 3 1 2 3 3 2 4 3 3 1 2 3 4 1 4

output
2 1 0

input
5 7 1 5 1 2 5 1 3 5 1 4 5 1 1 2 2 2 3 2 3 4 2 5

```
1 5
5 1
2 5
1 5
1 4
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output

```
1
1
1
1
2
```

Note

Let's consider the first sample.

The figure above shows the first sample.

- Vertex 1 and vertex 2 are connected by color 1 and 2.
- Vertex 3 and vertex 4 are connected by color 3.
- Vertex 1 and vertex 4 are not connected by any single color.