

# DMOPC '17 Contest 1 P3 - Hitchhiking Fun

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Bob is hitchhiking from city to city. There are  $N$  cities numbered from  $1$  to  $N$  and  $M$  bidirectional roads. He starts at city  $1$  and wants to get to city  $N$ . He has researched each road, and designated each one as either **safe** or **dangerous** for hitchhikers. Assuming that Bob will always be able to find a ride, find the minimum number of dangerous roads Bob must travel along to get to city  $N$ . Bob also wants to know the minimum number of roads he must travel on while still minimizing the number of dangerous roads.

## Constraints

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### Subtask 1 [20%]

All roads are dangerous.

$$1 \leq N, M \leq 10^5$$

### Subtask 2 [20%]

Exactly one road is dangerous.

$$1 \leq N, M \leq 10^5$$

### Subtask 3 [20%]

$$1 \leq N \leq 10^3$$

$$1 \leq M \leq 10^5$$

### Subtask 4 [40%]

$$1 \leq N, M \leq 10^5$$

## Input Specification

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The first line contains two integers representing  $N$  and  $M$ .

The following  $M$  lines contain three space-separated integers each. The  $i^{\text{th}}$  line contains  $a_i$ ,  $b_i$ , and  $t_i$ , indicating a road from city  $a_i$  to city  $b_i$ . If  $t_i$  is  $0$ , then this road is safe. Otherwise,  $t_i$  is  $1$  and this road is dangerous.

## Output Specification

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If Bob cannot reach city  $N$  at all, output  $-1$ . Otherwise, output two space-separated integers: the minimum number of dangerous roads and the minimum number of roads while minimizing the number of dangerous roads.

## Sample Input 1

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```
4 5
1 2 0
1 3 1
1 4 1
2 3 0
3 4 0
```

## Sample Output 1

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```
0 3
```

## Explanation for Sample 1

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Although Bob can go directly from city 1 to city 4, this path goes along a dangerous road. He can completely avoid dangerous roads by going from city 1 to city 2 to city 3 and finally to city 4.

## Sample Input 2

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```
4 6
1 1 0
1 3 1
4 2 1
4 3 0
2 4 0
2 3 0
```

## Sample Output 2

---

```
1 2
```

## Sample Input 3

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```
4 3
1 2 1
2 3 1
1 3 0
```

### Sample Output 3

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```
-1
```