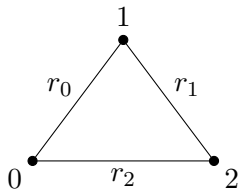
Road quality

Your country has N cities, and as you might expect by now, M roads connecting the cities. Each road connects two cities and can be traversed in both directions. The government wants to build a highway network in the country. However, since very little time is left before the upcoming elections, the Minister for Roads decides to simply declare some of the existing roads as highways.

She wants to select the highways (amongst the existing network of roads) such that every city can reach every other city using only highways (if this is possible). She knows the quality rating as well the length of each road. She wants to select the highways such that the minimum quality of any highway is as large as possible. There could be several ways to choose highways satisfying this constraint, so amongst these she wants to choose highways such that the total length of highways is as small as possible.

For example, suppose there are three cities connected as shown. The subsets of roads that can be selected as highways are $\{r_0, r_1, r_2\}$, $\{r_0, r_1\}$, $\{r_0, r_2\}$ and $\{r_1, r_2\}$. For the first three subsets the minimum quality is 5 and for the last subset the minimum quality is 7. So, by the Minister's criterion the roads to be selected as highways are $\{r_1, r_2\}$ with minimum quality 7 and overall length 6. Notice that the choice $\{r_0, r_2\}$ has a shorter total length but is not chosen because of the quality criterion.



Road	Quality	Length
r_0	5	3
r_1	7	4
r_2	8	2

Your goal is to help the Minister of Roads with her task. Note that there might be multiple roads between the same pairs of cities, and there might be roads both of whose endpoints are the same city.

Input format

The first line of input has two space-separated integers, N and M, the number of cities and roads respectively. The cities are numbered from 0 to $N-1$. Each of the next M lines has a description of a road with four space-separated integers : the two endpoints of the road, the quality of the road, and the length of the road, in that order.

Output format

If there is no way to connect all the cities, output a single line with -1. Otherwise, output a single line with two integers, the minimum quality of the selected highways, and the total length of the selected highways, in this order.

Test data

In all subtasks, $2 \leq N \leq 5000$ and $1 \leq M \leq 100000$. The quality and length of every road is an integer between 1 and 10^9 inclusive.

- Subtask 1 (20 marks) : All roads have the same quality.
- Subtask 2 (20 marks) : All roads have the same length.
- Subtask 3 (60 marks) : No additional constraints.

Sample input

```
3 3
0 1 5 3
2 0 8 2
1 2 7 4
```

Sample output

```
7 6
```

Limits

Memory limit : 128 MB

Time limit : 4s