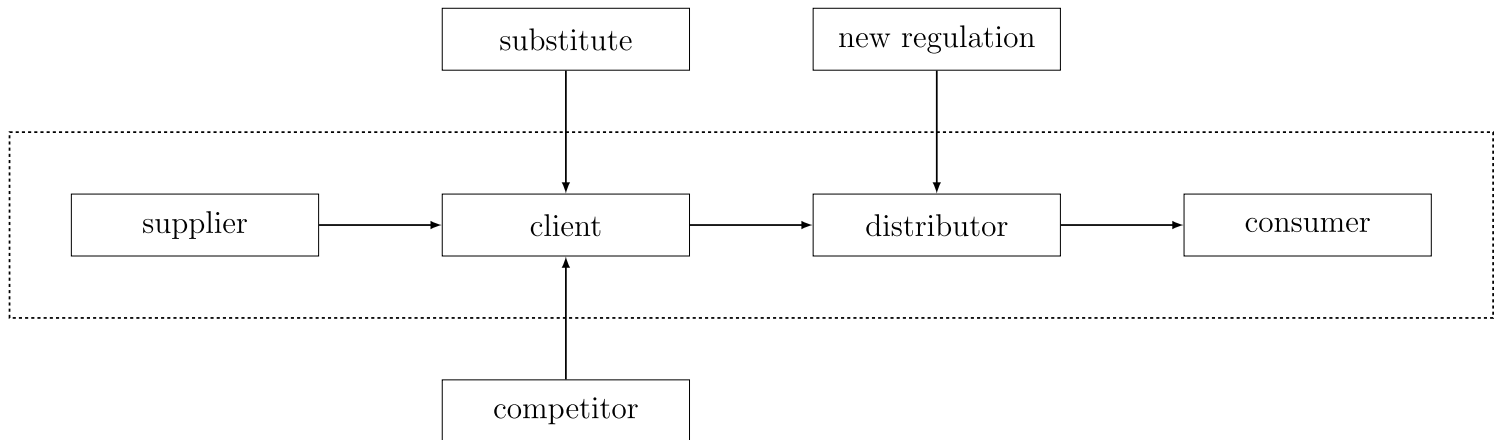# UTS Open '15 #5 - Distribution Channel

Time limit: 3.0s   **Memory limit:** 256M

Distribution channels are often very confusing.

After acquiring enough funding and finally finishing the development for her product, Mrs. Evans wants to release it to the local market. However, the Canadian Competition Act prevents her from choosing the cheapest way to connect her stores.

In order to spend the least amount of money and abide by the Canadian Competition Act, she must find the **second cheapest way** to connect her stores.

Mrs. Evans hopes to open N $(1 \le N \le 50\,000)$ stores and there are M $(1 \le M \le 100\,000)$ possible connections between her stores. The ith connection connects station a_i to station b_i with a cost of c_i. She can only choose $N - 1$ connections.

If it is impossible for her to do this, output `-1`.

N.B. The time limit is rather strict for certain slow languages like Python and Java. C++ is recommended for this question.

Partial Marks

For 25% of the marks, you may assume that $N \le 5\,000$, $M \le 10\,000$.

For 50% of the marks, you may assume that $N \le 10\,000$, $M \le 50\,000$.

Input Specification

The first line will contain N, and M. The ith of the next M lines will contain a_i, b_i, and c_i, where $(1 \le a_i, b_i \le N, a_i \ne b_i, 1 \le c_i \le 10\,000)$.

Output Specification

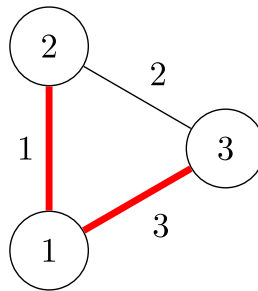A single line containing the second cheapest way to connect her stores.

Sample Input 1

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

Sample Output 1

```
4
```

Explanation for Sample Output 1

Mrs. Evans chooses the following connections for a total cost of 4:

- $1 \rightarrow 2$ with cost 1
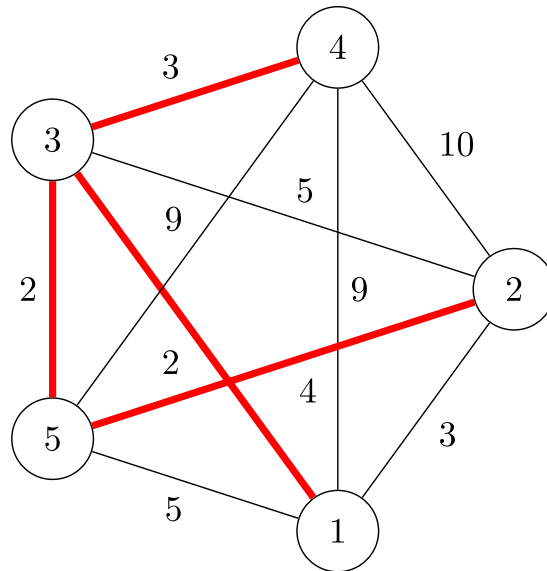- $1 \rightarrow 3$ with cost 3

Sample Input 2

```
5 10
2 3 5
1 5 5
1 2 3
1 3 2
5 3 2
4 3 3
4 5 9
4 2 10
5 2 4
4 1 9
```

Sample Output 2

11

Explanation for Sample Output 2

Mrs. Evans chooses the following connections for a total cost of 11:

- $1 \rightarrow 3$ with cost 2
- $3 \rightarrow 5$ with cost 2
- $3 \rightarrow 4$ with cost 3
- $2 \rightarrow 5$ with cost 4