Kingdom Roads (`kingdomroads`)

In the Kingdom of Graphonia, there are N towns connected by M bidirectional roads, with each pair of towns connected by at most one road. The royal castle is located in the first town (that is, town 1), and the network is *connected*, meaning it is possible to travel from the royal castle to any other town using the roads.

Figure 1: A map of Graphonia.

To minimize maintenance costs, the king has tasked the royal engineers with closing some roads in the kingdom while ensuring the following requirements are met:

- The network must stay *connected*.

- The royal castle must have exactly K direct connections to other towns.

- The total maintenance cost of the remaining roads must be minimized.

Help the royal engineers determine the total maintenance cost of the optimized network. If it is impossible to close some of the roads in the required way, write -1.

> ☞ Among the attachments of this task you may find a template file `kingdomroads.*` with a sample incomplete implementation.

Input

The first line contains N, M and K.

The $(i+1)$-th of the following M lines contains three integers, U_i, V_i and C_i, representing a road between towns U_i and V_i with a maintenance cost C_i.

Output

You need to write a single line with an integer: the unique integer that solves this task.

Constraints

- $2 \le N \le 100\,000$.
- $1 \le M \le 200\,000$.
- $1 \le K \le d_1$, where d_1 is the number of roads from the royal castle to other towns.
- $1 \le U_i, V_i \le N$, $U_i \ne V_i$ for each $i = 0 \dots M-1$.
- $0 \le C_i \le 10^9$ for each $i = 0 \dots M-1$.
- There is at most one edge between any two nodes and the edges form a connected graph.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points) Examples.

– **Subtask 2** (19 points) $C_i = 0$ for each i where $U_i, V_i \ne 1$.

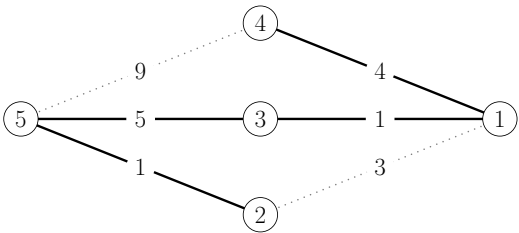– **Subtask 3** (23 points) $K = d_1$.

– **Subtask 4** (58 points) No additional limitations.

Examples

input	output
5 6 2 1 2 3 1 3 1 1 4 4 2 5 1 3 5 5 4 5 9	11
4 3 2 1 2 2 1 3 7 1 4 1	-1

Explanation

In the **first sample case**, the first and sixth road of the input must be closed.

In the **second sample case**, there is no way to satisfy the requirements.