Problem A. Xtreme NP-hard Problem?!

Input file:	standard input
Output file:	standard output
Time limit:	5 seconds
Memory limit:	1024 megabytes

Caution! This problem turned out to be NP-hard. But since there were no rules against writing an NP-hard problem, we decided to leave this problem here.

There is a bidirectional graph consisting of n vertices and m edges. The vertices and edges are numbered from 1 to n and 1 to m respectively, and the weight of edge i is w_i. ($1 \leq i \leq m$) Given a natural number k, find the length of the shortest simple path that starts from vertex 1 and ends at vertex n, and consists of k edges. A simple path is a path that does not visit same vertex twice, and length of a path is the sum of weight of edges that consists the path.

Input

In the first line, three space-separated integers $n,\ m,\ k$ are given. ($2 \leq n < 10^6$, $1 \leq m,\ k < 10^6$, $\min(n,\ m,\ k) \leq 5$)

In the next m lines, three space-separated integers $x_i,\ y_i,\ w_i$ are given. They denote that edge i is connecting vertex x_i and vertex y_i, and has weight w_i. ($1 \leq x_i,\ y_i \leq n$, $1 \leq w_i \leq 10^8$)

No loops or multiple edges are given.

Output

Print the length of the shortest simple path that starts from vertex 1 and ends at vertex n, and consists of k edges. If there is no such path, print -1.

Example

standard input	standard output
6 6 3 1 2 3 2 3 1 3 6 4 1 4 1 4 5 5 5 6 9	8