Problem A. Amazonía Univesity Tour

Source file name:	Amazonia.c, Amazonia.cpp, Amazonia.java, Amazonia.py
Input:	`standard input`
Output:	`standard output`
Author(s):	`Juan José Ortiz Plaza - Uni. Amazonía (Student)`

Amazonía Univesity has hired you to teach the top n sites new students should know about. To do this you must define a route in which each site is visited only once on the route and say what is the shortest possible distance.

Each site is numbered by a unique value and they are connected by m bidirectional roads. The tour must start at the university's principal door, identified with the number x. And the tour may end anywhere.

Input

The first line of input contains three numbers n, m and x. n is the number of sites, m is the number of roads and x is the identifier of the university's principal door. $2 \leq n \leq 16, 1 \leq m \leq n * (n-1)/2, 1 \leq x \leq 10^5$.

The next m lines contain the description of the roads, the $i-th$ line contains three numbers: $u_i, v_i, w_i (1 \leq u_i, v_i, w_i \leq 10^5, u_i \neq v_i)$ indicating that you can go from the site u_i to the site v_i and viceversa with a distance w_i.

Output

Show the minimum distance possible by visiting all sites once, starting from x. If it is impossible then to show -1.

Examples

Input	Output
5 6 1 1 4 50 4 3 2 3 50 1 50 2 100 50 4 1 4 2 1	152
5 6 2 1 4 50 4 3 2 3 50 1 50 2 100 50 4 1 4 2 1	153
5 6 50 1 4 50 4 3 2 3 50 1 50 2 100 50 4 1 4 2 1	-1