

Problem E. E

Time limit 1000 ms
Mem limit 131072 kB
OS Linux

For a given weighted directed graph $G(V, E)$, find the distance of the shortest route that meets the following criteria:

- It is a closed cycle where it ends at the same point it starts.
- It visits each vertex exactly once.

Input

$|V|$ $|E|$

s_0 t_0 d_0

s_1 t_1 d_1

:

$s_{|E|-1}$ $t_{|E|-1}$ $d_{|E|-1}$

$|V|$ is the number of vertices and $|E|$ is the number of edges in the graph. The graph vertices are named with the numbers $0, 1, \dots, |V|-1$ respectively.

s_i and t_i represent source and target vertices of i -th edge (directed) and d_i represents the distance between s_i and t_i (the i -th edge).

Output

Print the shortest distance in a line. If there is no solution, print -1.

Constraints

- $2 \leq |V| \leq 15$
- $0 \leq d_i \leq 1,000$
- There are no multiedge

Sample Input 1

4 6
0 1 2
1 2 3
1 3 9
2 0 1
2 3 6
3 2 4

Sample Output 1

16

Sample Input 2

3 3
0 1 1
1 2 1
0 2 1

Sample Output 2

-1