DSA Lab 11 Set 2 | SecondMST

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	64 megabytes

For a connected undirected weighted graph, with V nodes numbered $1, 2, ...V$, find the spanning tree with the second least total weight. If the graph has no such spanning tree, print -1.

Input

The first line contains two space-separated integers V and E, indicating the number of vertices numbered 1 to V and E edges in the undirected graph.
Next E lines contain three integers (space-separated) in each line: v_1, v_2 and w, indicating there is an edge of weight w between v_1 and v_2.
Constraints:
$1 \leq E \leq \frac{V*(V-1)}{2}$
$1 \leq v_1, v_2 \leq V$
$1 \leq w \leq 500000$
Basic: $2 \leq V \leq 20$
Advanced: $2 \leq V \leq 500$
Note 1: If an edge (x, y) is in the list, there will not be an edge (y, x) in the list as that is implied.
Note 2: There are no self-edges (x, x) and no edges are repeated in the list.
Note 3: The graph will be connected.
Note 4: The edge weights will be unique

Output

An integer indicating the total weight of the spanning tree obtained with the second least total weight. If the graph has no such spanning tree, print -1.

Examples

standard input	standard output
6 7 1 2 6 2 3 4 2 4 3 2 5 1 1 5 5 5 6 7 4 5 2	20
5 5 1 2 1 2 3 4 2 4 2 2 5 3 3 5 5	11

Note

Explanation 1: Possible spanning tree with second least sum is $\{(1, 2), (2, 3), (5, 6), (4, 5), (2, 5)\}$ with sum 20
Explanation 2: Possible spanning tree with second least sum is $\{(1, 2), (5, 3), (2, 4), (2, 5)\}$ with sum 11