

PROBLEM F. TOTAL PAIRWISE MIN COST

Time limit: 1 second

You are given a simple undirected weighted graph. Cost of a path in this graph is defined as the product of smallest edge weight on this path and the number of edges on this path. Path may visit a vertex, an edge multiple times. For two vertices u and v , let $D(u, v)$ be the smallest cost among all paths from u to v if u and v can be connected by a path, or 0 otherwise.

Your task is calculating S where S is the total of $D(u, v)$ for all unordered pair of vertices u, v .

Input

The first input line contains two integers n ($2 \leq n \leq 300$) and m ($0 \leq m \leq 1000$), they are the number of vertices and the number of edges of the given graph respectively. Vertices of the graph are enumerated from 1 to n .

Then m lines followed, each contains three positive integers u, v, c ($u \leq n, v \leq n, c \leq 10^{15}$) with meaning there is an edge with weight c between vertices u and v .

Output

Since the value of S can be very large, output value of S if S has no more than 9 digits. Otherwise, output the last 9 digits of S .

Sample

INPUT	OUTPUT
4 4 1 2 1 2 3 2 3 4 4 2 4 2	13