

Problem B

A lazy travelling salesman has to do a round trip visiting some (not necessarily all) of his customers. He wants to find such a round trip which is as short as possible (in terms of the total distance, not the number of customers he visits). He can start the round trip at any customer (and then must end it at the same customer) and he cannot visit any other customer more than once.

Input and output

The first line of the input contains two integers n and m ($n \leq 1000$, $n \leq m \leq 10\,000$), the number of customers and the number of routes between them. Each route can be used in both directions, and there is at most one direct route between any two customers. Each of the following m lines contains three integers a , b , and s ($a, b \in \{1, \dots, n\}$, $a \neq b$, $1 \leq s \leq 10\,000$), indicating there exists a direct route between the customers a and b of length s .

The output consists of a single integer, the minimum total length of a cycle (with at least three vertices) in the graph described by the input.

Example

Input:

```
4 5
1 2 1
2 3 1
3 4 1
1 4 1
1 3 3
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Output:

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4
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