

F Ford's Funny Fields

Time limit: 5s

After learning about SEP ("Somebody Else's Problem") Fields, Arthur Dent wants to use them to hide his spaceship.

Inspired by Slartibartfast, his ship is similar to a Subway restaurant – that is, long and narrow. More precisely, the ship has width 1 and length s .

To hide his ship, Arthur borrows SEP Fields of different costs and sizes from Ford. Of each type, Ford owns x SEP Fields of width 1 and length ℓ that cost c Altarian Dollars. As Ford's disposition is hardly predictable, Arthur wants to minimize the cost of the SEP Fields he needs to ask Ford to borrow.

You are tasked with helping Arthur compute the minimum cost (in Altarian Dollars) in order to hide his entire ship. The total length of the borrowed SEP Fields is allowed to be larger than the length of the ship.



Surely, nobody will notice this spaceship hidden by SEP Fields. CC BY-SA 2.5 by Nathan Beach on Wikimedia Commons

Input

The input consists of:

- One line with two integers n and s ($1 \leq n \leq 100$, $1 \leq s \leq 2000$), the number of different field types Ford has, and the length of Arthur's ship.
- n lines, each with three integers x , ℓ , and c ($1 \leq x \leq 20$, $1 \leq \ell \leq 100$, $1 \leq c \leq 10^9$), representing a type of SEP Field: x is the number of such fields Ford has, ℓ is the length of such a field, and c is the cost of such a field.

Output

If it is possible to hide the ship, output the minimum total cost to do so. Otherwise, output "impossible".

Sample Input 1

2 10 3 4 3 2 3 1	Sample Output 1 5
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Sample Input 2

1 10 3 3 10	Sample Output 2 impossible
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Sample Input 3

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2 10
2 6 5
1 12 8
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Sample Output 3

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8
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