

D. Meteorites Fall

Statement

We have a big problem: a shower of asteroids is about to fall on the Earth! NASA's scientists are certain: if nothing is done, the damage caused won't be recoverable and humanity will not survive.

Thankfully, Scarlet Witch has found a solution. She will be able to send off a part of those rocks out of our solar system thanks to a portal that she is going to summon! This portal won't be able to absorb every asteroid, and once it exceeds its maximum capacity, it will explode and destroy the Earth.

Every asteroid has an amount of energy $1 \leq E_i \leq 10^8$, but the portal can only absorb $0 \leq Q \leq 5 \cdot 10^3$ in total.

As she was summoning the portal, she found a major problem: some asteroids are charged with blue energy, and others with yellow energy. However, her portal can only absorb green energy. The asteroids will thus have to pass the portal two by two, one blue and one yellow (regardless of their energy levels).

It is time to make decisions: how much damage will our hero be able to prevent?



It is not going to be pleasant

Input

- On the first line, an integer $0 \leq Q \leq 5 \cdot 10^3$, the total amount of energy that the portal can absorb
- On the second line, an integer $0 \leq N \leq 10^2$, the number of asteroids
- On the N next lines: two integers separated by a space $C \in \{1, 2\}$ and $1 \leq E_i \leq 10^8$, the energy color and the amount of energy of the asteroid. $C = 1$ if the energy is yellow, $C = 2$ if it is blue.

Output

- An integer, the maximum amount of energy passed by the portal.

Note : The portal explodes if the energy is more than Q .

Examples

Example 1

Input	Output
100 6 1 10 1 50 1 60 2 30 2 20 2 60	90

We choose asteroid n_3 (yellow) and n_4 (blue) to pass through the portal, there is thus only $60+30$ energy units that pass through it. Other combinations let less energy through or saturate the portal.

Exemple 2

Input	Output
100 4 1 50 1 60 2 70 2 60	0

There is no pair that does not saturate the portal. We can't evacuate any asteroid, so the portal is charged with 0 energy units.