Bet

There are n bettors numbered from 1 to n, and k players numbered from 1 to k in a sporting event. Bettor i ($1 \leq i \leq n$) plans to bet on player $c[i]$ ($1 \leq c[i] \leq k$). You are the gambling manager. For each i ($1 \leq i \leq n$), you can choose whether to let bettor i place their bet or not. If you let bettor i place their bet, one of the following two things will happen:

- If the bet is correct, meaning that player $c[i]$ wins, you will lose $a[i]$ coins.
- Otherwise, if the bet is wrong, you will gain $b[i]$ coins.

It is guaranteed that there will be no draw, that is, only one player will win the sporting event.

By choosing the bettors optimally, find the maximum number of coins that you can make in the worst case.

Input

Read the input from the standard input in the following format:

- line 1: $n \;\; k$
- line $1+i$ $(1 \leq i \leq n)$: $a[i] \;\; b[i] \;\; c[i]$

Output

Write the output to the standard output in the following format:

- line 1: the maximum number of coins that you can make in the worst case.

Constraints

For all subtasks, the following inequalities satisfy:

- $1 \leq n \leq 500$
- $1 \leq k \leq 20$
- $1 \leq a[i] \leq 1\,000\,000$ (for all $1 \leq i \leq n$)
- $1 \leq b[i] \leq 500$ (for all $1 \leq i \leq n$)
- $1 \leq c[i] \leq k$ (for all $1 \leq i \leq n$)

Subtasks

1. (3 point) $n \leq 20$
2. (14 point) $a[i] = a[j]$ and $b[i] = b[j]$ (for all $1 \leq i, j \leq n$)
3. (26 point) $k = 2$, $n \leq 80$, and $a[i], b[i] \leq 80$ (for all $1 \leq i \leq n$)
4. (34 point) $a[i], b[i] \leq 500$ (for all $1 \leq i \leq n$)
5. (23 point) No further constraints.

Examples

Example 1

```
10 4
4 2 3
4 3 3
5 5 1
1 2 3
1 5 3
5 2 3
8 5 3
10 3 2
1 5 1
4 4 4
```

The correct output is:

```
11
```

The optimal decision is to let bettors 2, 3, 4, 5, 8, 9, and 10 place their bet. This way, if

- player 1 wins, you will have 11 coins.
- player 2 wins, you will have 14 coins.
- player 3 wins, you will have 11 coins.
- player 4 wins, you will have 13 coins. And the worst of them is 11. Thus, the answer for this scenario is 11.

Example 2

```
10 4
2 5 4
3 1 2
3 1 3
6 2 3
7 2 4
10 4 2
7 2 1
4 2 2
6 1 4
9 1 2
```

The correct output is:

```
2
```

In this case, you could choose bettors 1, 4, 7, and 8. Alternatively, you could also choose bettors 1, 2, 4, 7, and 8; both of the choices yield the maximum number of coins 2.

Example 3

```
10 5
4 2 5
4 2 3
4 1 4
9 1 3
18 5 2
8 4 5
20 2 5
15 3 2
15 2 5
13 3 2
```

The correct output is:

```
0
```

In this case, you will always lose coins regardless of the choices. So, it is optimal to not let any bettor place bet.

Example 4

```
10 2
1 5 1
8 4 1
6 3 2
3 3 1
5 5 2
3 2 1
10 3 1
6 4 1
4 2 2
5 2 2
```

The correct output is:

```
1
```