

Stabbing

Time Limit	Memory Limit
2 seconds	512 MB

Statement

Sakuya is playing the ancient game of *stabbing*. The game proceeds as follows:

- There are N segments on the number line, the i th extending from l_i to r_i and being worth p_i points.
- Sakuya makes exactly K *stabs* at integer points on the number line. Sakuya may stab the same point multiple times. The i th segment is *stabbed* if at least 1 stab is placed in the interval from l_i to r_i inclusive.
- At the end of the game, she gets a score equal to the sum of the point values of all stabbed intervals.

Your task is to compute the maximum score Sakuya can get, and output a set of stab positions that give this score.

Input

- The first line of input contains the two integers N and K .
- The next N lines of input contain three integers each, the i -th of which contains l_i , r_i and p_i .

Output

- On the first line, output a single integer: the maximum score Sakuya can achieve.
- On the second line, output K space-separated integers in non-decreasing order, representing the set of points on the number line that Sakuya should stab to achieve this score. These stab positions should be integers between 1 and 10^9 .

If there are multiple solutions with the same score, output any of them.

Sample Input 1

```
6 2
1 4 1
2 7 3
3 5 1
6 8 4
8 11 2
9 12 3
```

Sample Output 1

```
12
6 11
```

Sample Input 2

```
3 1
1 2 2
2 4 1
3 5 1
```

Sample Output 2

```
3
2
```

Explanation

- In Sample Input 1, if Sakuya stabs at positions 6 and 11, intervals 2, 4, 5 and 6 will be stabbed. The number of points gained is therefore $3 + 4 + 2 + 3 = 12$.
- In Sample Input 2, if Sakuya stabs at position 2, intervals 1 and 2 will be stabbed, The number of points gained is therefore $2 + 1 = 3$.

Constraints

- $1 \leq N \leq 50000$
- $1 \leq K \leq \min(N, 20)$
- $1 \leq l_i \leq r_i \leq 10^9$ for all i
- $1 \leq p_i \leq 10^9$ for all i

Subtasks

Number	Points	Other constraints
1	8	$l_i = r_i$ for all i
2	12	$N \leq 300$ and $r_i \leq 600$ for all i
3	8	$N \leq 300$
4	12	$K = 1$
5	22	$K = 2$
6	38	No further constraints