
Black Friday

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 512 megabytes

Today is Black Friday, so Misha decided to purchase some new equipment for his mining farm. There is a special offer in the electronics store. If you buy video cards of type i , and the number of video cards is from l_i to r_i , inclusive ($1.4 \cdot l_i \leq r_i$), then the price will be much lower than the market price. Misha can take with him no more than s video cards. He decided to buy as many video cards for this discount as possible. Misha can't solve this problem, so he asks you for help. For each type of video card, determine how many pieces you need to buy, or not to buy at all, so that the total number of video cards he bought is **maximum possible**, but not greater than s .

Input

The first line of input contains two integers n and s ($1 \leq n \leq 10^5$, $1 \leq s \leq 10^{13}$) — the number of video card types and the maximum number of video cards that Misha can take with him.

The following n lines contain two integers l_i and r_i ($1 \leq l_i \leq 10^{13}$, $1.4 \cdot l_i \leq r_i \leq 10^{13}$) — the minimum and maximum number of video cards of type i , that can be bought at a discount.

Output

In the first line print the only integer w — the maximum number of video cards that can be bought at a discount ($0 \leq w \leq s$). In the second line, print n integers x_i . The i -th number is equal to the number of video cards of i -th type to buy. Note that either $x_i = 0$ or $l_i \leq x_i \leq r_i$, and also that the sum of x_i must be equal to w . If there are several solutions maximizing w , print any.

Scoring

Subtask	Score	Additional Constraints
1	10	$n \leq 20$
2	14	$n \leq 500, s \leq 2 \cdot 10^5$
3	16	$n \leq 500$
4	29	$n \leq 5000$
5	31	no additional constraints

Example

standard input	standard output
3 20 1 2 10 17 11 16	19 2 17 0

Explanation

In the example, it is optimal to buy video cards of the first and second type. Note that you cannot buy video cards of the second and third type at the same time, since then you will need to buy at least $10 + 11 = 21$ a piece, which is more than 20.