Coloured Balls

You are shopping for coloured balls. You want to get at least K different-coloured balls. Each ball has its own price, hence you also want to minimize the cost of buying the coloured balls.

Once you arrive at the shop, you realize that the balls are arranged in a straight line and you are only allowed to take consecutive balls, i.e. you cannot take a portion of the balls and then take another portion that is not contiguous.

To help minimize the cost (and to get at least K different-coloured balls), you need a program that will be able to tell you how much you can actually spend. This way, you will be sure about the minimum amount that you need to spend.

Input

The first line contains two integers N (1 <= N <= 100,000) and K (1 <= K <= N), denoting the number of balls and the minimum number of different coloured balls you need, separated by a single space.

N rows follow.

Each row consists of two integers, P (1 <= P <= 10,000) and C (1 <= C <= 1,000,000), denoting the price and colour of the ball respectively. The colour is denoted by a single integer, hence balls with the same colour will be represented by the same number. It is guaranteed that there are at least K different-coloured balls in the shop

Output

Print the minimum price to buy at least K different-coloured balls, given the above constraints. Your output should contain a newline character.

Sample Input 1

```
5 2
100 33
200 33
300 33
50 22
25 22
```

Sample Output 1

```
350
```

Sample Input 2

```
5 3
100 1
100 2
50 2
300 3
10 2
```

Sample Output 2

```
550
```

Explanation

In the first sample input, you need to get at least 2 different-coloured balls. You can achieve this by selecting the third and fourth ball. Note that the balls must be contiguous, hence you cannot take the first and fifth ball (even though it gives lower cost).

In the second sample input, you need to get at least 3 different-coloured balls. This is achieved when you take the first ball until the fourth ball. Note that you must do it this way since there are only 3 different-coloured balls in the shop and only 1 ball is coloured "1" and "3".

Skeleton

You are given the skeleton file `ColouredBalls.java`.

Notes

1. You must either use **stack** or **queue** to solve this problem, whichever is suitable.
2. Your program might give out the correct answer, but killed on CodeCrunch. It means that your program is not efficient enough (i.e. it runs too slow). You should design a more efficient algorithm to solve this problem if this is the case. Consider the above note as a hint.
3. The expected solution has a time complexity of **O(N).**