CODEFORCES
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PROBLEMS   SUBMIT CODE   MY SUBMISSIONS   STATUS   HACKS   STANDINGS   CUSTOM INVOCATION

D2. Too Many Segments (hard version)

time limit per test: 2 seconds

memory limit per test: 256 megabytes

The only difference between easy and hard versions is constraints.

You are given n segments on the coordinate axis OX. Segments can intersect, lie inside each other and even coincide. The i-th segment is $[l_i; r_i]$ $(l_i \le r_i)$ and it covers all integer points j such that $l_i \le j \le r_i$.

The integer point is called **bad** if it is covered by **strictly more** than k segments.

Your task is to remove the minimum number of segments so that there are no **bad** points at all.

Input

The first line of the input contains two integers n and k $(1 \le k \le n \le 2 \cdot 10^5)$ — the number of segments and the maximum number of segments by which each integer point can be covered.

The next n lines contain segments. The i-th line contains two integers l_i and r_i $(1 \le l_i \le r_i \le 2 \cdot 10^5)$ — the endpoints of the i-th segment.

Output

In the first line print one integer m $(0 \le m \le n)$ — the minimum number of segments you need to remove so that there are no **bad** points.

In the second line print m **distinct** integers $p_1, p_2, \ldots, p_m$ $(1 \le p_i \le n)$ — indices of segments you remove in any order. If there are multiple answers, you can print any of them.

Examples

input | Copy
```
7 2
11 11
9 11
7 8
8 9
7 8
9 11
7 9
```

output | Copy
```
3
4 6 7
```

input | Copy
```
5 1
29 30
30 30
29 29
28 30
30 30
```

output | Copy
```
3
1 4 5
```

input | Copy
```
6 1
2 3
3 3
2 3
2 2
2 3
2 3
```

output | Copy
```
4
1 3 5 6
```

Codeforces Round 595 (Div. 3)
Finished
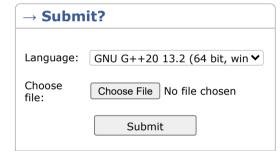
Practice

⭐

→ Virtual participation ⌄

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

[Start virtual contest]

→ Clone Contest to Mashup ⌄

You can clone this contest to a mashup.

[Clone Contest]

→ Submit?

Language: [GNU G++20 13.2 (64 bit, win ⌄]

Choose file: [Choose File] No file chosen

[Submit]

→ Last submissions

Submission	Time	Verdict
323259893	Jun/07/2025 17:18	**Accepted**

→ Problem tags

data structures   greedy   sortings

*1800

No tag edit access

→ Contest materials

- Announcement   ✕
- Tutorial   ✕

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