Утегенов Батырхан Елембетұлы [ADS-Lab-03]: Submit a solution

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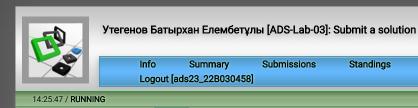14:25:47 / **RUNNING**

| A | B | C | D | E | F | G | H | I | J | K |

Submit a solution for E-Jonathan the Farmer

Time limit: 5 s

Real time limit: 10 s

Memory limit: 256M

Problem E: Jonathan the Farmer

Jonathan is the Farmer whose household was damaged by a huge hurricane. He lost majority of his cattle. One day he walked near his farm and observed that there are N sheeps on the field. Each sheep is always grazing inside some rectangular area. Jonathan remembered such areas for each sheep. When he came home, he decided to build a paddock to catch at least K sheeps (to catch a sheep Jonathan must cover sheep's pasture fully). Jonathan prefers squares rather than usual rectangles, therefore he want to build square paddock with the corner at point $(0,0)$. Material for paddock costs money, so Jonathan wants to minimize the length of paddock side. He is not very good at math, please help him find this length.

Input format

The first line of the input contains two integers N and K ($1 \leqslant K \leqslant N \leqslant 2 \cdot 10^5$) - number of sheeps grazing in the field and the number of sheeps Jonathan wants to catch.

Each of the next N lines contain four integers $x_{i,1}$, $y_{i,1}$, $x_{i,2}$, $y_{i,2}$ ($1 \leqslant x_{i,1} < x_{i,2} \leqslant 10^9$, $1 \leqslant y_{i,1} < y_{i,2} \leqslant 10^9$) - coordinates of bottom-left and top-right corners of the i_{th} sheep's pasture.

Output format

Find the minimum length of square paddock such that at least K sheeps' pastures fit there.

Examples

Input

```
10 7
5 1 7 8
1 3 5 4
5 8 8 10
7 1 8 5
9 1 10 5
4 4 7 5
1 6 7 7
5 7 9 10
4 8 5 9
4 2 5 3
```

Output

```
9
```

Input

```
10 2
7 4 8 9
7 7 8 8
4 3 6 7
4 1 8 6
4 2 10 5
1 3 2 10
6 8 7 9
7 5 8 6
4 4 8 5
4 1 5 2
```

Output

```
7
```

Submit a solution

Submit a solution

Language: [g++ - GNU C++ 11.4.0 ▼]

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Send!   [Send!]

Previous submissions of this problem

Run ID	Time	Size	Problem	Language	Result	Failed test	View source	View report
5265	893:20:05	586	E	g++	OK	N/A	View	View

A	B	C	D	E	F	G	H	I	J	K