Sets

You have N points of the form (X_i, Y_i). You must partition them into two **non empty** sets A and B such that each point belongs to exactly one set and the sum of 'the width of set A' and 'the height of set B' is minimized.

The height of a set of points is defined as the vertical distance between the highest and lowest points in the set. The width of a set of points is defined as the horizontal distance between the leftmost and rightmost points in the set.

Input:

- The first line contains an integer N and Q — the number of points.
- The next N lines contain two integers each, X_i and Y_i — the coordinates of the i-th point.

Output:

Print a single integer — the minimum sum of 'the width of set A' and 'the height of set B'.

Constraints

- $2 \leq N \leq 2 \cdot 10^6$
- $0 \leq X_i, Y_i \leq 10^8$

Subtasks

- **Subtask #1 (10 points):** $N \leq 25$
- **Subtask #2 (10 points):** $N \leq 850$
- **Subtask #3 (10 points):** $N \leq 1.9 \cdot 10^4$
- **Subtask #4 (20 points):** $N \leq 9 \cdot 10^4$
- **Subtask #5 (25 points):** $N \leq 6.1 \cdot 10^5$
- **Subtask #6 (25 points):** $N \leq 2 \cdot 10^6$

Sample Input:

```
11
1 28
5 24
11 14
13 43
19 29
23 6
```

```
28 25
36 51
39 32
44 29
50 21
```

Sample Output:

```
36
```

EXPLANATION:

One of possible partition is $A = \{3, 4, 6, 8, 9\}$ and $B = \{1, 2, 5, 7, 10, 11\}$ (1-based indexing). The width of A is $39 - 11 = 28$. The height of B is $29 - 21 = 8$. The sum is $28 + 8 = 36$.