Problem L
Expected Beauty

Morgan the robot has an array A of size N, indexed from 1 to N. The value of each element in A is randomly generated; A_i can be any integer from L_i to R_i (inclusive) with equal probability.

Morgan defines the *beauty* of A as follows. First, Morgan has a variable named `score` that is initialized to 0. An operation on the array a is as follows:

- Choose an index i such that $1 \leq i < |a|$ and $a_i = a_{i+1}$. If no such i exists, then the operation cannot be performed.
- Add the value of a_i to `score` and remove a_i from the array.
- The array a becomes the concatenation of the remaining elements without changing its order.

The *beauty* of A is the maximum value of $\texttt{score}^2$ Morgan can possibly get after performing zero or more operations on the array A.

Since the array is randomly generated, Morgan wonders about the expected beauty of A. Due to the inefficiency of his algorithm, Morgan asks for your help to calculate the expected value.

Input

Input begins with an integer N ($1 \leq N \leq 200\,000$) representing the size of array A. Each of the next N lines contains two integers L_i R_i ($1 \leq L_i \leq R_i \leq 10^8$).

Output

Let $M = 998\,244\,353$. It can be shown that the expected value can be expressed as an irreducible fraction $\frac{p}{q}$, where p and q are integers and $q \not\equiv 0 \mod M$. Output an integer x in a single line such that $0 \leq x < M$ and $x \cdot q \equiv p \mod M$.

Sample Input #1

```
3
1 2
2 3
1 3
```

Sample Output #1

```
831870298
```

Explanation for the sample input/output #1

There are 12 possibilities of A. Out of all possibilities, the following has positive beauty.

- $[1, 2, 2]$ with a beauty of 4.
- $[1, 3, 3]$ with a beauty of 9.
- $[2, 2, 1]$ with a beauty of 4.
- $[2, 2, 2]$ with a beauty of 16.
- $[2, 2, 3]$ with a beauty of 4.
- $[2, 3, 3]$ with a beauty of 9.

Therefore, the expected beauty of A is $(4 + 9 + 4 + 16 + 4 + 9)/12 = \frac{46}{12} = \frac{23}{6}$. Since $831\,870\,298 \cdot 6 \equiv 23 \mod 998\,244\,353$, you need to output $831\,870\,298$.

Sample Input #2

```
4
1 1
1 1
2 2
2 2
```

Sample Output #2

```
9
```

Explanation for the sample input/output #2

The only possible value of A is $[1, 1, 2, 2]$ with a beauty of $(1 + 2)^2 = 9$.

Sample Input #3

```
3
1 2
3 4
5 6
```

Sample Output #3

```
0
```