

Dim Sum

This question is graded for 1.5%!

Statement

Fluffy the Hamster is having dim sum for lunch today.

There are N types of dim sum that Fluffy can order, numbered from 0 to $N - 1$. The i th type of dim sum has C_i calories and has deliciousness D_i .

For a set of dim sum $S = \{i_1, i_2, \dots, i_n\}$, the *satisfaction* of the set of dim sum that Fluffy derives from consumption is given by $\left(\sum_{i \in S} C_i\right) \cdot \min_{i \in S} D_i$.

Fluffy has enough money to buy at most P types of dim sum. Help Fluffy compute what is the maximum satisfaction he can obtain.

Constraints

- $1 \leq P \leq N \leq 3 \cdot 10^5$
- $1 \leq C_i, D_i \leq 10^6$.

Input

The first line of input will contain two integers N and P .

The next N lines of input will each contain two integers, C_i and D_i .

Output

Print a single integer, the maximum possible satisfaction that Fluffy can obtain.

Important Note

For the purposes of this lab, you may **not** use Java API `TreeSet`, `TreeMap`, or any other implementations of binary search trees. **Submissions which violate this rule will be given a score of 0.**

Examples

Sample Input	Expected Output
5 3 5 4 5 1 3 2 7 6 6 6	78

Notes

1. A skeleton file has been given to help you. You should not create a new file or rename the file provided. You should develop your program using this skeleton file.
2. You are free to define your own helper methods and classes (or remove existing ones) if it is suitable but you must put all the new classes, if any, in the same skeleton file provided.

Skeleton File

You are given the skeleton file `DimSum.java`. You should see the following contents when you open the file:

```
/**
 * Name      :
 * Matric. No :
 */

import java.util.*;

public class DimSum {
    private void run() {

    }

    public static void main(String args[]) {
        DimSum runner = new DimSum();
        runner.run();
    }
}
```