A Greedy Problem

Time limit: 1.0s **Memory limit:** 64M

You are given N factories and M total number of boxes which you must fulfill. Each factory has 2 values, p_i and a_i, denoting the price in cents that factory i charges for one box, and the total number of boxes factory i has respectively.

Please find the minimum price in cents in order to obtain at least M boxes. It is guaranteed that at least M boxes can be achieved.

Input Specification

First line contains 2 integers, N and M.

Next N lines each contain 2 integers, p_i and a_i.

Output Specification

Output the minimum price in cents in order to obtain at least M boxes.

Subtasks

For all subtasks:

$1 \leq N \leq 2 \times 10^5$

$1 \leq M \leq 2 \times 10^9$

$0 \leq p_i \leq 1\,000$

$0 \leq a_i \leq 2 \times 10^6$

Subtask 1 [20%]

$1 \leq N \leq 100$

$1 \leq M \leq 5 \times 10^7$

Subtask 2 [80%]

No additional constraints.

Sample Input

```
5 100
5 20
9 40
3 10
8 80
6 30
```

Sample Output

```
630
```

Sample Explanation

Price per Box	Units available	Units bought	Prices $\times$ # of units	Total Cost	Notes
5	20	20	5×20	100	
9	40	0			Bought no boxes from factory 2
3	10	10	3×10	30	
8	80	40	8×40	320	Did not buy all 80 units
6	30	30	6×30	180	
Total	180	100		630	Cheapest total cost