

## Problem C Migration

**Time Limit: 1 second**  
**Memory Limit: 512 megabytes**

City  $X$  is about to face a natural disaster, so it is necessary to migrate out of this city. Currently, residents are staying at  $N$  starships with unlimited space in the city. However, the government realized that there was only enough fuel for  $K$  starships to fly out of the city.

Therefore, the local government immediately planned to combine some residents from  $N$  starships to  $K$  starships to fly out of the city. The fuel cost for emergency relocation  $w_i$  people from the  $i^{\text{th}}$  starship at coordinate  $x_i$  to the  $j^{\text{th}}$  starship at coordinate  $x_j$  is equal to  $|x_i - x_j| \times w_i$ . Find the solution that needs the lowest fuel cost for relocation.

### Input

The first line contains two space-separated integers describing the respective values of  $N$  and  $K$  ( $N, K \leq 5000$ ).

Each line of the subsequent lines contains two space-separated integers describing the respective values of  $x_i$  and  $w_i$  ( $1 \leq w_i, x_i \leq 10^6$ ).

### Output

Minimum cost for relocation people.

#### Sample Input

#### Sample Output

3 1 20 1 30 1 40 1	20
3 1 11 3 12 2 13 1	4
6 2 10 15 12 17 16 18 18 13 30 10 32 1	182