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^{th} starship at coordinate x_i to the j^{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