E. Minimum Modular

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You have been given n distinct integers $a_1, a_2, ..., a_n$. You can remove at most k of them. Find the minimum modular m $(m > 0)$, so that for every pair of the remaining integers (a_i, a_j), the following unequality holds: .

Input

The first line contains two integers n and k $(1 \leq n \leq 5000, 0 \leq k \leq 4)$, which we have mentioned above.

The second line contains n distinct integers $a_1, a_2, ..., a_n$ $(0 \leq a_i \leq 10^6)$.

Output

Print a single positive integer — the minimum m.

Examples

input
7 0 0 2 3 6 7 12 18
output
13

input
7 1 0 2 3 6 7 12 18
output
7