Kamogawa

Time limit: 2 sec.
Memory limit: 512MB

Description

Junhee has an old friend. They lived in the same neighborhood, went to the same elementary school and high school. Junhee moved into Daejeon, Korea to attend KAIST, his friend moved into Kyoto, Japan, to attend Kyoto University. One day, Junhee had a vacation in Japan. Then, he visited Kyoto to see his old friend.

Hanging around Kyoto, an old capital city of Japan, the friend told him an urban legend. A river named Kamogawa runs through Kyoto. The river has few small curves, but it is practically straight. When it is sunny, a lot of couples living in Kyoto come to the river, and have a good time sitting on the bank of the river. As not disturbing others is a virtue in Japanese culture, they try to sit as far from other couples as possible. If you look at the river in distance, you will find that they are evenly distributed. People of Kyoto refer this as the "Kamogawa Evenly Distributed Couples Principle."

Recently, the City of Kyoto installed benches on the bank for the couples. Because the city government prepared enough benches, every couple can sit on benches instead of on the ground. But, there is a problem: because the benches are not evenly distributed, Kamogawa Evenly Distributed Couples Principle is not true anymore. So, the citizens of Kyoto organized "The Society of citizens who love Kamogawa Evenly Distributed Couples

Principle." They want to solve this problem using science and technology. They asked you to write a problem.

The river is modelled as a single line. You are given the coordinates of m benches. When there are n couples, find the maximum of the minimum distance between couples.

Input

The first line has two integers m and n, the number of benches and couples, respectively. ($2 \leq n \leq 100$, $2 \leq m \leq 1{,}000$, $n \leq m$)

The second line has m distinct nonnegative integers, the coordinates of benches, in increasing order. The coordinates are between 0 to 1,000,000, inclusively.

Output

Print the maximum of the minimum distance between couples in one line.

Sample I/O

Input(s)	Output(s)
7 4 0 70 90 120 200 210 220	50