Problem D – Distributing Pizza.

Author: Juan Pablo Marín

Site manager of El Gran Premio bought a pizza to be distributed betweeen the N contestants of the contest site, the pizza is a classical circular shaped pizza with chesse and pepperoni, it has K slices, and as you may guess the pepperoni is not distributed evenly into the pizza slices.

To avoid this being a mess, the Site manager decided to make exactly N cuts in the pizza to divide it in N parts, each of the contestants will take one of the parts and therefore they will only need to take pizza one time, minimizing the odds for someone to throw the pizza to the floor. Contestants in the site love pizza, but, they care more for the manager to be fair. The contestants defined the "unfairness" of the pizza distribution between contestants i and j as the difference in the amount of pepperoni that exists between the pizza parts that contestants i and j took.

The site manager wants to avoid "unfairness" as much as contestants, that is why he has come to you as the most experienced programmer and asked to create a program that given the amount of pepperoni each slice of the pizza has, determines, what is the way to cut the pizza in order that the maximum "unfairness" between any pair of contestants is as small as possible.

Input

The first line of input contains two integer numbers separated by a space N and K ($1 \leq N \leq K \leq 100$). Each of the next K lines contains an integer number the i-th line represents the amount of pepperoni the i-th slice in the pizza has, no slice will have more than 10^5 pepperonis.

Output

Output a single line with an integer representing the maximum "unfairness" between any pair of contestants in the pizza distribution where this value is the smallest.

Sample input 1	**Sample output 1**
1 4 5 10 15 20	0

Sample input 2	**Sample output 2**
2 4 5 10 15 21	1