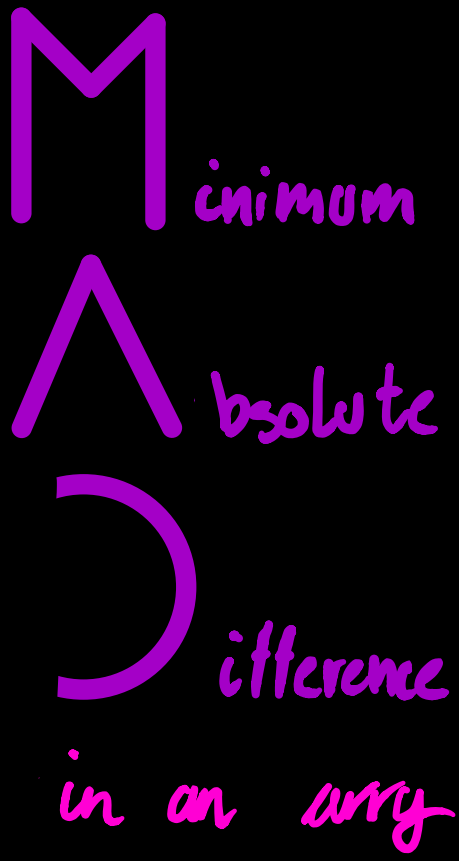
Minimum
Absolute
Difference
in an array

Integers: $[a_1, a_2, \cdots, a_n]$

abs diff = $|a_i - a_j|$

TASK: find the minimum absolute difference between a pair of integers.

- $2 \leq n \leq 10^5$
- $-10^9 \leq a_i \leq 10^9$

Ex 1.

$[3, -7, 0]$

min diff = 3

Ex 2.

$[-59, -36, -13, 1, -53, -92, -2, -96, -54, 75]$

min diff = 1 $(-53, -54)$

Check diff for each digit?

Ex 1: $[0, 10, 3]$ for 3

$[10, 0, 7]$ for -7

[3, 7, 0] for 0

→ When [3, -7] has been checked
[-7, 3] has been checked as well.

While loop + list comprehension:

runs in $O(n^2)$

Can sorting help?

.sort() runs in $O(n \log n)$

Ex 1: [-7, 0, 3] if sorted

⇒ [7, 10]

[3]