

## Problem

Permute a list of n integers ( $n \le 10^5$ ) such that for each  $2 \le i \le n-1$  it holds that  $|t'_{i-1} - t'_i| \le |t'_i - t'_{i+1}|$ .

## Solution

- Sort the array.
- The largest possible value of  $|t_x t_y|$  is  $\max(t) \min(t)$ .
- Put max(t) in the *n*th place and min(t) in the *n* 1th place. It is guaranteed that no other difference will be larger.
- Repeat the same logic with the last two elements fixed and t' as the remaining elements.
- Now the largest value of  $|t_x t_y|$  is  $\max(t') \min(t)$ . Put  $\max(t')$  in the n 2nd place.
- Continue, alternating between min and max of the remaining elements.



## Gotchas

• Not sorting the array in advance.

Statistics: 199 submissions, 114 + ? accepted