## Problem

Permute a list of $n$ integers $\left(n \leq 10^{5}\right)$ such that for each $2 \leq i \leq n-1$ it holds that $\left|t_{i-1}^{\prime}-t_{i}^{\prime}\right| \leq\left|t_{i}^{\prime}-t_{i+1}^{\prime}\right|$.

## Solution

- Sort the array.
- The largest possible value of $\left|t_{x}-t_{y}\right|$ is $\max (t)-\min (t)$.
- Put $\max (t)$ in the $n$th place and $\min (t)$ in the $n-1$ th place. It is guaranteed that no other difference will be larger.
- Repeat the same logic with the last two elements fixed and $t^{\prime}$ as the remaining elements.
- Now the largest value of $\left|t_{x}-t_{y}\right|$ is $\max \left(t^{\prime}\right)-\min (t)$. Put $\max \left(t^{\prime}\right)$ in the $n-2$ nd place.
- Continue, alternating between min and max of the remaining elements.


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## Gotchas

- Not sorting the array in advance.

Statistics: 199 submissions, $114+$ ? accepted

