

The sketch of $\text{PARANOID-PARTITION}(A, p, r)$:

1. Pick an i randomly in $[p, r]$
2. Count how many elements are $\leq A[i]$
3. If the count is in $[n/4, 3n/4]$, i.e. it's a good pivot, do the exchange and call PARTITION , otherwise repeat the process.