Lecture 17: Bounds on Sorting

- Sorting demo
- heapsort
- bounds on sorting & bucket sort
- Quiz
how many
rearrangements
of an array
of size \( n \)
exist?

- \( n \) choices
  for first elt.
- \( n-1 \) choices
  for 2nd elt.
- \( n-2 \) choices
  for 3rd elt.
- \( 1 \) choice
  for \( n \)th elt.

\( n! \) total possible
choices

\[ = n (n-1) (n-2) \cdots 1 \]

\( \log_2(n!) \) is \( O(n \log n) \) \( \leq \)

\( \log_2(n!) \) is \( \Omega(n \log n) \) \( \geq \)