

# Lecture 24

CSE 331

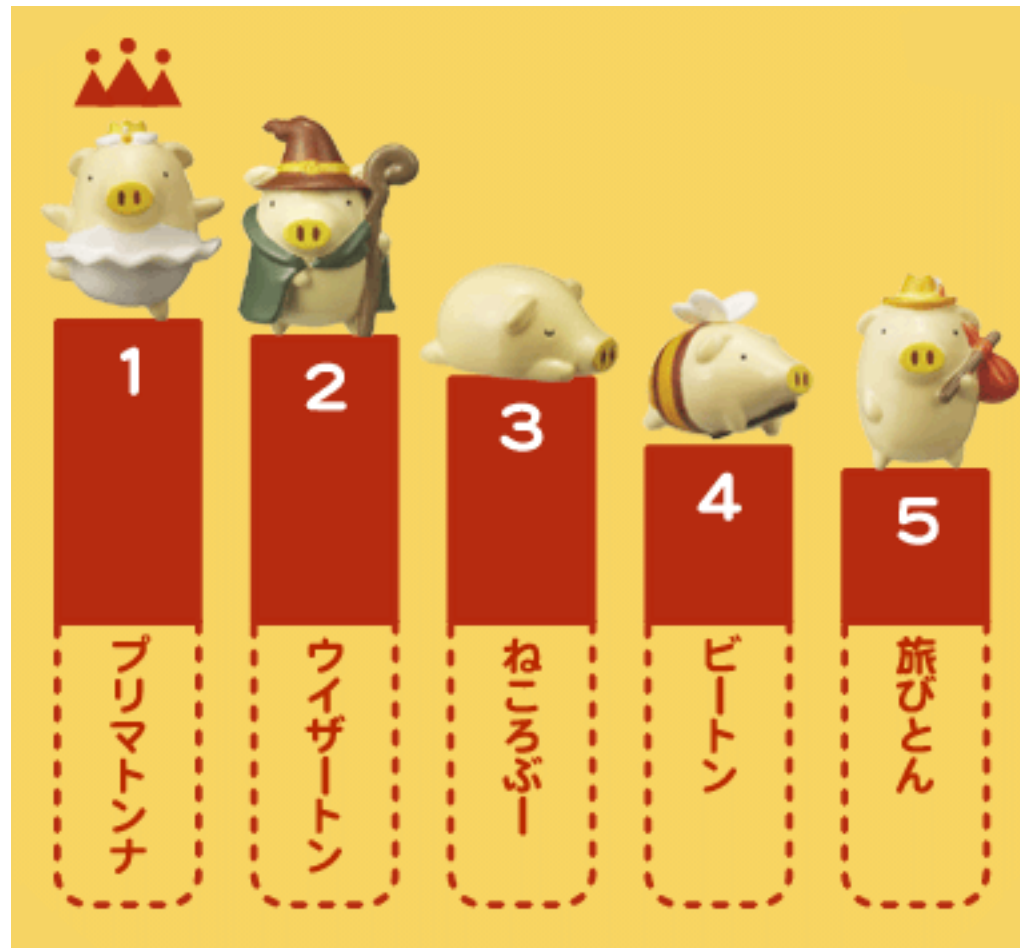
# MergeSort

Runtime analysis on the board...

# Comments on Sorting Algorithms...

- Any comparison-based algorithm needs to make  $\Omega(n \log n)$  comparisons.
- $O(n \log n)$  is the best known upper bound on general, comparison-based sorting algorithms.
- Can sort faster (i.e.,  $O(n)$ ) if domain of the elements  $a_i$  is of size  $O(n)$  (e.g., T/F poll #1 where  $a_i \in \{0, 1\}$ ).
- Can run faster if the input is almost “sorted”.

# Rankings



# How close are two rankings?



compare two rankings



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About 125,000,000 results (0.65 seconds)

<https://towardsdatascience.com/rbo-v-s-kendall-tau-to-compare-ranked-lists/>

## RBO v/s Kendall Tau to compare ranked lists

Jan 10, 2021 — The Kendall Tau metric also known as Kendall's method used to check if **two ranked** lists are in agreement.

<https://stackoverflow.com/questions/how-to-compare-ranked-lists>

## How to compare ranked lists - Stack Overflow

Nov 26, 2012 — Cavnar & Trenkle have a nice and simple measure **two ranked** lists. The Wilcoxon ranked-sum test gives a measure **3 answers** · Top answer: This question has never been answered

compare two rankings

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<https://stackoverflow.com/questions/13574406/how-to-compare-ranked-lists>

## How to compare ranked lists - Stack Overflow

I have **two** lists of ranked items. Each item has an rank and an associated score. The score has decided the rank. The **two** lists can contains (and usually do) different items, that is their intersection can be empty. I need measures to **compare** such rankings. Are there well-known algorithms (in literature or real-world systems) to do so ?

<https://stackoverflow.com/questions/9149345/ranking-algorithms-to-compare-rankings>

## Ranking algorithms to compare "Rankings" - Stack Overflow

Ranking algorithms to compare "Rankings" Ask Question Asked 10 years ago. ... Is there an algorithm that allows to rank items based on the difference of the position of those items in **two** rankings but also "weighted" with the position of one Player that goes from position 2 to 1?

# Collaborative Filtering



# Rest of today's agenda

Formal problem: Counting inversions

Divide and Conquer algorithm