SORTING AND SEARCHING WORKBOOK

In this mini-workbook, we'll get you up and running with sorting and searching. The ability to sort and search through data are crucial operations that underlie many of the problems you will encounter when interviewing.

In the guide, we will quickly highlight the key concepts that you need to know for your interview. If you're unfamiliar with any of these, I highly recommend taking some time to review them.

Then, I've provided you with a series of exercises to help you get up and running quickly. I recommend setting aside 2-3 days to work through these exercises. Simply start from the top and work through them as much as you have time.

Make sure to track the time you spend here in your Interview Prep Tracker. You can categorize this as "Study" time.

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KEY SEARCHING PATTERNS

- **Binary search**
  Searching algorithm that can be applied to a sorted collection of data.
- **Linear search**
  Searching from the start to the end of a collection of data for the element in question.

KEY SORTING PATTERNS

- Selection Sort
- Bubble Sort
- Insertion Sort
- Quick Sort
- Merge Sort
- Heap Sort
- Bucket Sort

SORTING AND SEARCHING EXERCISES

1. Binary search is one of the most fundamental searching algorithms to be used on a sorted collection of data. Knowing how to implement binary search and also how to apply it to problems you may encounter is an important skill to master.

- Binary Search (Full Problem Definition)
- Find Closest Number (Full Problem Definition)
- Find Number in Rotated Array (Full Problem Definition)

2. Now that we know how to find stuff once our data is sorted, let's make sure that we know how to sort it.

- Implement Mergesort on an array
- Implement Quicksort on an array

3. And now that we have all this down, what are some interesting things we can do with sorting and searching?

- Sort a Linked List (Full Problem Definition)
- Largest Number (Full Problem Definition)
- Find the Square Root (Full Problem Definition)
- Split Array Largest Sum (Full Problem Definition)