

## Introduction to Algorithms

Let's define what algorithms are and why they're used in programming.

### What are Algorithms?

When learning to program, we might've come across a mysterious term, "algorithm". New vocabulary can be confusing at first, so let's take away the mystique and define it. In programming, an *algorithm* is a series of step-by-step instructions that a developer gives to the computer to complete a task. All the code you've written so far has been algorithms!

Let's use a non-programming example to better familiarize ourselves. Think about recipes, they are a written series of steps that provide cooks instructions on how to make a dish. Now try to focus on one dish you know really well and visualize its recipe. Doesn't that recipe sound very similar to how programming thinks about algorithms?

Alright, time to bring our attention back to programming!

### Algorithms in Programming

Algorithms are used all the time in programming! That's because programming is essentially writing code to solve problems. And as developers, we're tasked with solving things like performing mathematical calculations, finding the most optimal path to a destination, directing user traffic to avoid overloading a server, and everything in between. When we go about solving these problems, we are writing instructions for a computer to figure out the solution for us — which means we are creating algorithms.

### Well-Known Algorithms

Some problems are so common that there are dedicated and well-known algorithms. One such common problem is being able to sort data. There are quite a few well-known algorithms such as:

- [Bubble Sort](#)
- [Merge Sort](#)
- [Quicksort](#)

Since these algorithms are so well-known, they're sometimes used as interview questions! Each algorithm eventually sorts an array of elements, but they all use different approaches. Don't worry though, we'll cover these algorithms and other helpful algorithms later on!

### Review

Good work! We covered the definition of algorithms — which is a step-by-step series of instructions for a computer to complete a task. Algorithms pop up all the time in programming and there are even some special ones for commonly encountered problems.

When tackling a programming problem, think about the logical series of steps to solve this problem — in other words, form an algorithm!

