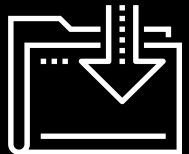# Computer Science for JavaScript

Web Development Boot Camp
Unit 17

What is **computer science?**

What Is Computer Science?

- Computer science is formally known as "the study of computers and computational systems."

- The study of the design, development, and analysis of software systems.

- The art of telling a computer what to do through a set of instructions.

How will understanding computer science make us better programmers?

The Benefits of Understanding Computer Science

- These concepts often appear during technical interviews.

- When inheriting large codebases, you might be asked to optimize code efficiency.

- Understanding what makes up a program will help us design software more efficiently.

- Discovering how a program executes can tell us how to avoid performance issues.

- **Computational thinking** refers to the formulation of a solution using logic, patterns, and problem-solving methods.

Which computer science concepts will we learn?

Computer Science Concepts

- We will learn about algorithms and how to gauge their performance.

- We will learn about data structures and how they are implemented in JavaScript.

What is Big O notation?

Big O Notation

- Big O notation helps us describe how runtime will scale when we increase input size (n).

- It is denoted with a capital O alongside the growth factor (in parentheses).

- **Example:** The time complexity of simple search is O(n)

What is a data structure?

What is a Data Structure?

- A way of storing data so that it can be used efficiently by the computer or browser.

- It is built upon simpler primitive data types (like variables)

- It is non-opinionated, in the sense that it is only responsible for holding the data.

Data Structures?

Example Data Structure: Arrays

```
var favFoods = ["Pickles", "Onions", "Carrots"]
```

Why is computer science a common category for technical interview questions?

Computer Science in Technical Interviews

- Understanding computer science fundamentals shows that you know how a program functions and how to make it faster and more efficient.

- Many candidates are computer science graduates.

- Comprehending the use cases of data structures and the algorithms that manipulate them will help you create more performant applications.

Instructor Demonstration
Mini-Project