



Computer Science for JavaScript

Coding Boot Camp

Module 17





What is computer science?

What Is Computer Science?

01

Computer science is formally known as “the study of computers and computational systems.”

02

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

03

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

Algorithms

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

Data Structures

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?

01

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

02

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

03

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

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

01

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

02

Many candidates are computer science graduates.



03

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