



# Object-Oriented Programming (OOP)

Web Development Boot Camp  
Unit 10







# What is programming?

# Programming

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**Programming** refers to designing and building an executable program that will accomplish a specific computing task. Essentially, programming is problem-solving.



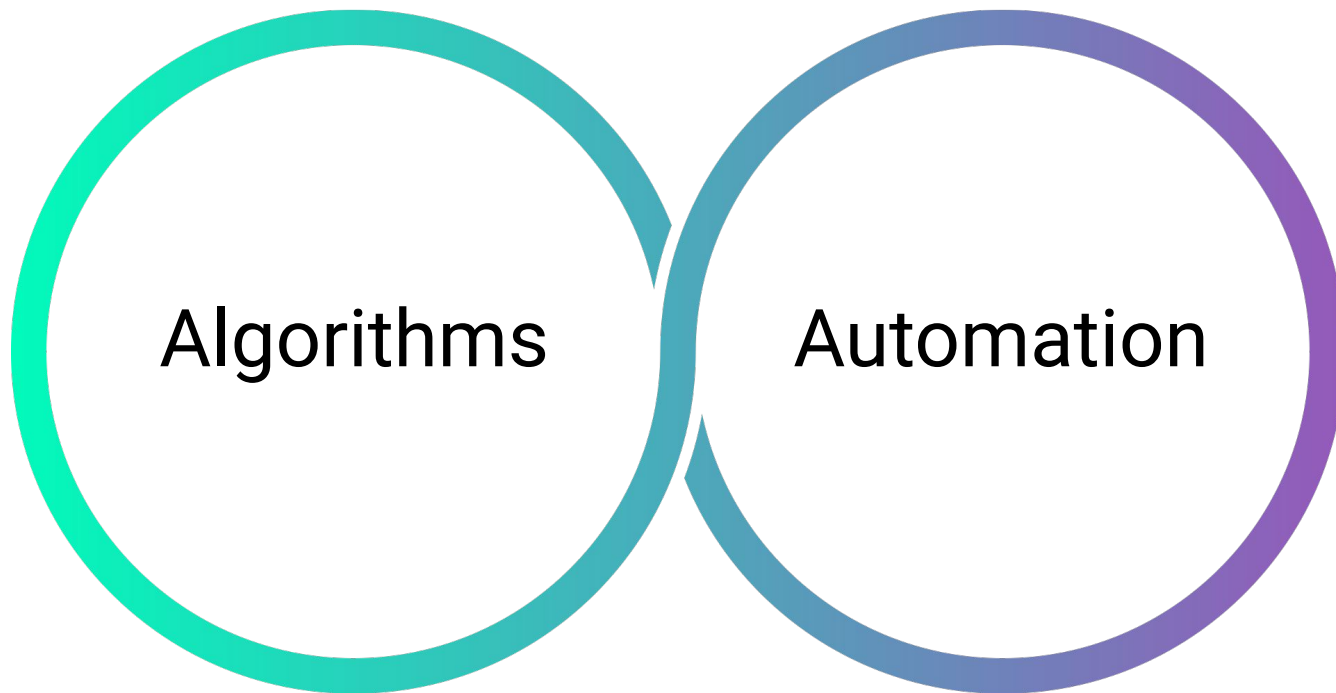


**What problems do we solve?**

# Algorithms and Automation

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Programming enables us to solve almost any task or problem on a computer, usually in one of two primary categories: algorithms or automation.





**What is DRY?**

# Don't Repeat Yourself (DRY)

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**DRY**, or **Don't Repeat Yourself**, is a fundamental programming principle. Duplicate code wastes time and memory and can confuse readers or contributors to your project.

D on't  
R epeat  
Y ourself





**What is an object?**

# Objects

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**Objects** in JavaScript are unordered collections of related data built on a key-value structure in which values can be any data type, including functions.

```
const person = {  
  name: ['Bob', 'Smith'],  
  age: 32,  
  gender: 'male',  
  interests: ['music', 'skiing'],  
  bio() {  
    alert(  
      `${this.name[0]} ${this.name[1]} is ${this.age} years old.  
      He likes ${this.interests[0]} and ${this.interests[1]}.`  
    );  
  },  
  greeting() {  
    alert(`Hi! I'm ${this.name[0]}.`);  
  },  
};
```



# **Why are objects important in JavaScript?**

# Because Everything in JavaScript Is an Object!

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Well, except for primitive data types. Everything else is an object—essentially a list of key-value pairs.

## Data types that are objects:

- Arrays
- Dates
- Math
- Functions
- And more!

## Primitive data types (**NOT** objects):

- Null
- Undefined
- Strings
- Numbers
- Symbols
- Booleans



**How do we create objects?**

# Creating Objects

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We can use **object literals**, which define and create an object in one statement.

```
const car = { name: 'honda', model: 'civic', year: 2008, color: 'black' };
```

We can use the `new` keyword, which defines and creates a single object.

```
const Honda = new Car()
```

Or we can use **constructors**, which create objects from a blueprint.

```
class Car {  
  constructor(name, model, year, color) {  
    this.name = name;  
    this.model = model;  
    this.year = year;  
    this.color = color;  
  }  
}
```

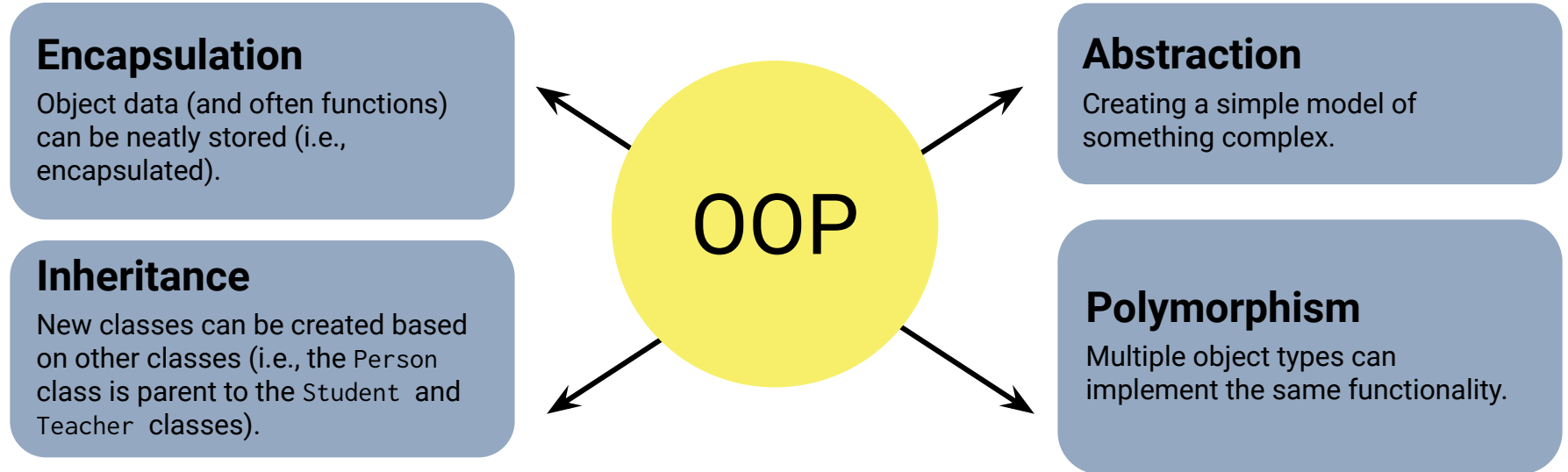


# What is object-oriented programming?

# Object-Oriented Programming (OOP)

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OOP is a programming paradigm, or pattern, centered around objects. In object-oriented programming, we solve problems by employing collections of objects that work together. Their ability to communicate with each other makes objects particularly well-suited to address large, complex problems. OOP offers the following benefits:







**How can we learn to use OOP?**

# How to Learn OOP

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OOP is a broad concept that is best learned through real-life examples. We begin to see the value of OOP when we use objects to model real-world things in code and provide functionality that would otherwise be hard or impossible to achieve.

Try some of the following techniques to learn OOP:

- Read the docs and practice with the provided examples.
- Reverse-engineer finished code to see how it was created.
- Build something from scratch.
- Debug a broken app using Chrome DevTools.
- And most importantly, ask questions!



# Instructor Demonstration

## Mini-Project