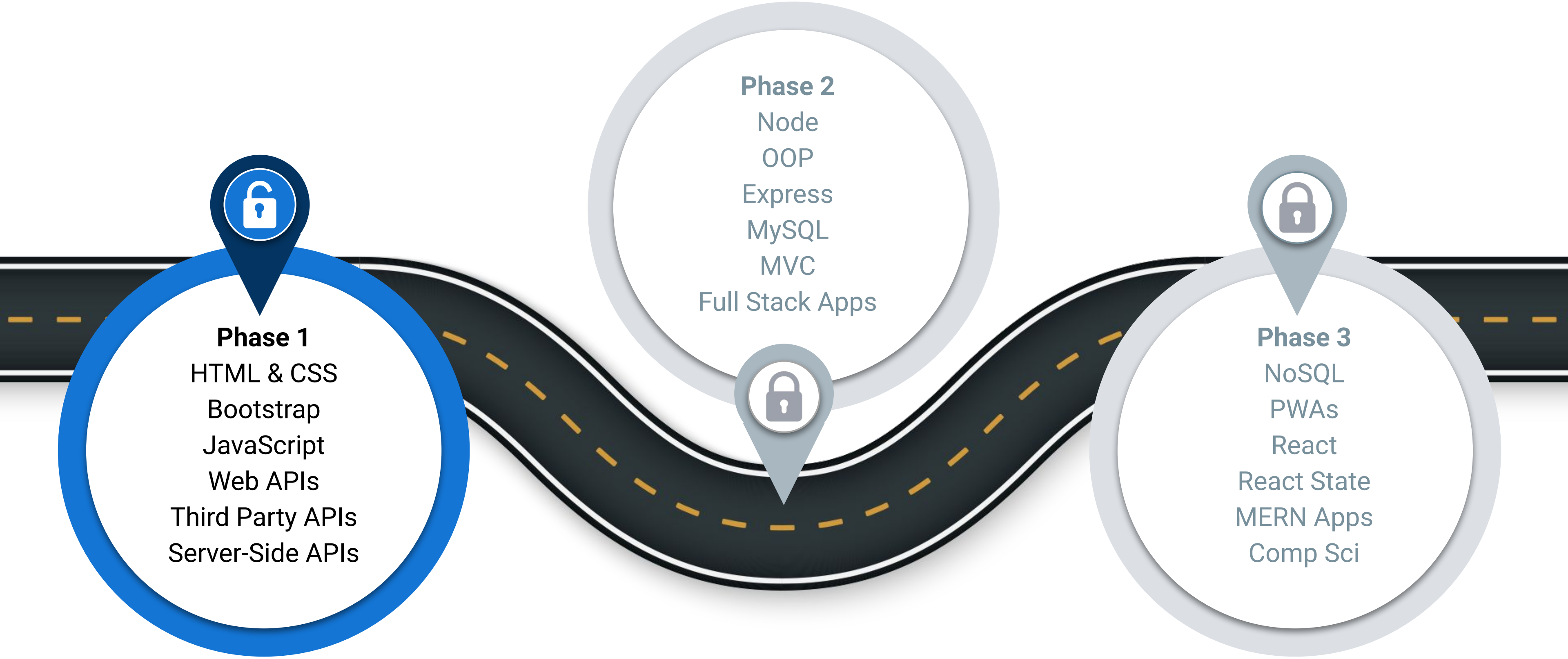
Server-Side APIs

Coding Boot Camp

Module 06

The Big Picture



Phase 1
HTML & CSS
Bootstrap
JavaScript
Web APIs
Third Party APIs
Server-Side APIs

Phase 2
Node
OOP
Express
MySQL
MVC
Full Stack Apps

Phase 3
NoSQL
PWAs
React
React State
MERN Apps
Comp Sci

Boot Camp Pointers

Before we get into this content, remember that you have a lot of different support systems available to you:

Learning Assistants
Office Hours
Tutoring Services

This Week: Server-Side APIs

By the end of this week, you will learn how to:

- Explain the difference between a client-side API and a server-side API
- Explain the client-server model and request-response pattern
- Explain and implement the differences between HTTP GET requests using XMLHTTPRequest, jQuery AJAX, and the fetch API
- Explain HTTP response codes and handle response metadata with fetch API
- Parse JSON to dynamically generate HTML
- Explain the benefits and challenges of working with asynchronous JavaScript
- Explain and implement query string parameters

This Week's Assignment

How will you use this week's content in your next assignment?

Career Connection

How will you use this week's content in your career?

Tips for Success: Server-Side APIs

Keep these tips in mind:

01 Each API’s documentation is going to be different. **Read it carefully!**

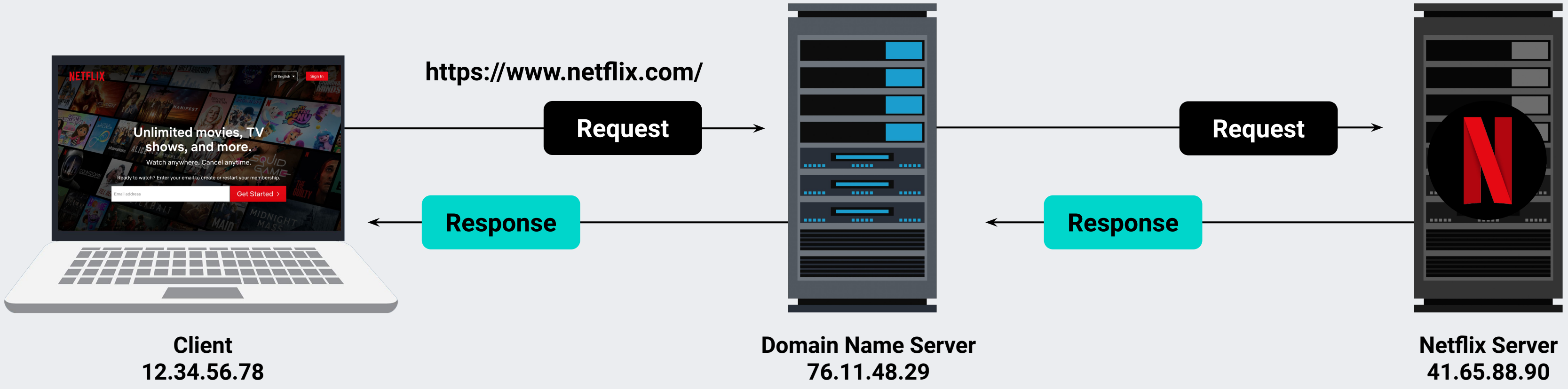
02 Don’t forget to be mindful of your error messages. **They may help you uncover an unexpected bug.**

03 Googling error messages can lead you to what other developers have done to resolve issues!

Where do web applications live?

Web Applications Live on Servers

Web servers are typically nothing more than specialized computers running software with the specific task of waiting for an internet request to come in and ask for data in return.



How are these requests made?

On the web, data is transferred over HTTP, or **Hypertext Transfer Protocol**. HTTP is a set of rules and regulations for how data can be requested by a client and how a server can respond to that request.

Across all internet-connected devices, we constantly make HTTP requests to web servers for different types of data constantly, like the following examples.

Requesting Data Over HTTP

Across all internet-connected devices, we constantly make HTTP requests to web servers for different types of data constantly, like the following:

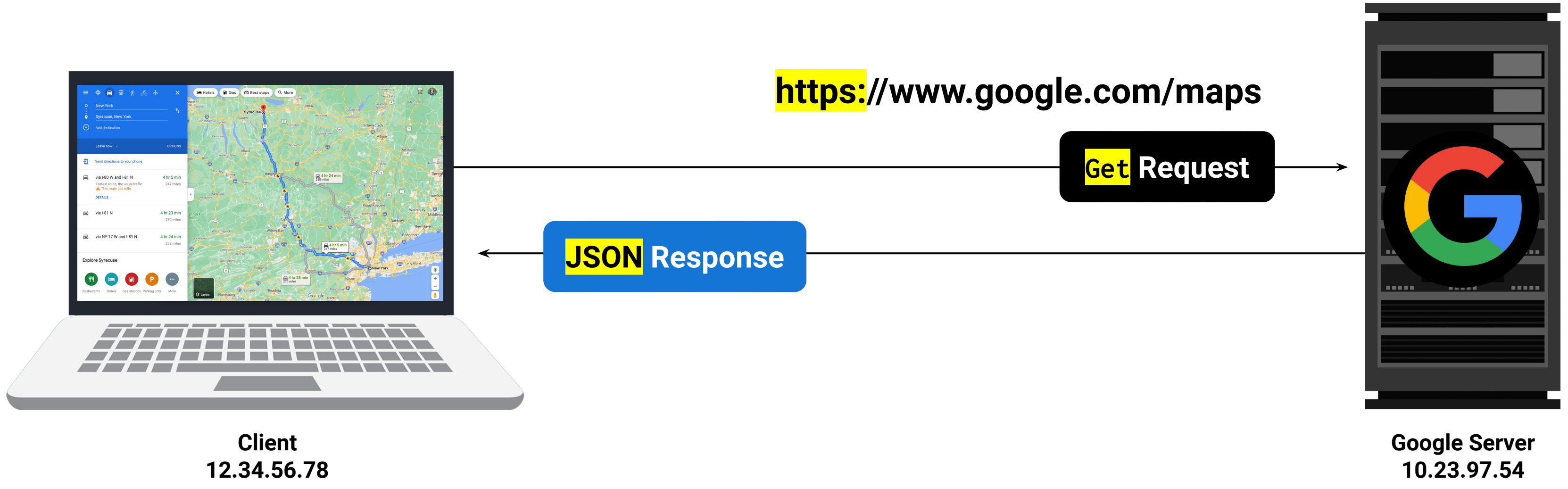
- Visiting deployed applications at `<username>.github.io`.
- A phone or watch automatically updating the weather forecast.
- Using a media streaming service.
- Using HTML `<link>` and `<script>` tags to incorporate Bootstrap, jQuery, or any other third-party API into an application.

Can we use data from other servers in an application?

Yes, we can! Just as we’ve used third-party APIs to make an application’s functionality and design easier to maintain, we can use specific functionality to request data over HTTP and use that data in an application.

JSON (JavaScript Object Notation)

This data usually comes in the form of a special type of JavaScript object known as JSON (JavaScript Object Notation).



JSON (JavaScript Object Notation)

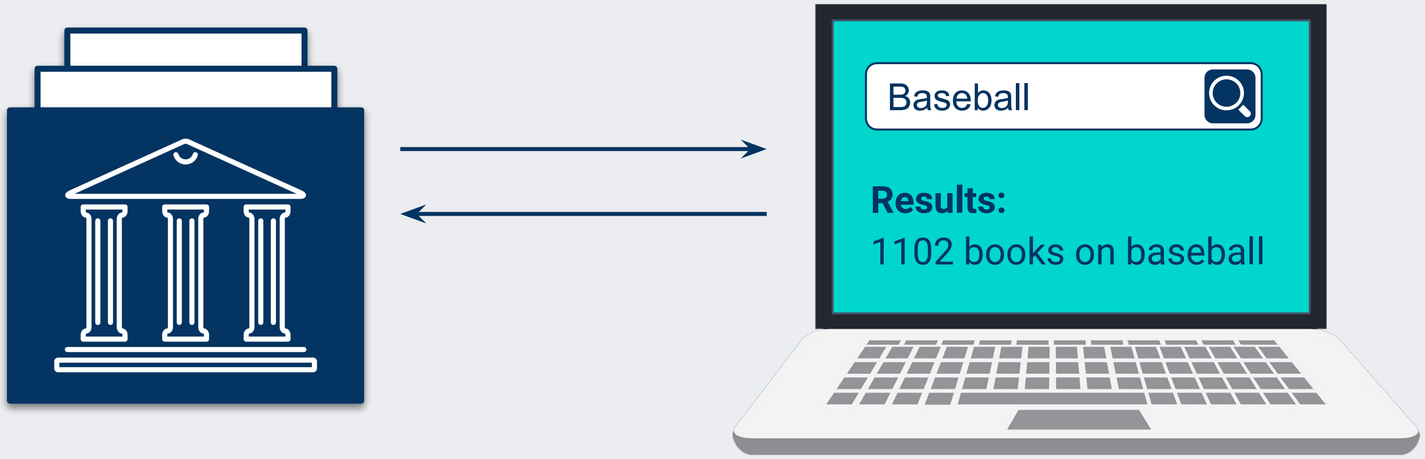
With this data, we can do any of the following in an application:

- Retrieve weather data to display in an application.
- Use Google Maps to help create a trip itinerary.
- Manage Spotify or YouTube playlists.
- Control lights, alarms, and other devices.
- And much, much more!

How can we learn to use and implement these types of APIs?

How to Learn Server-Side APIs

Like other APIs we've used in the past, the implementation of server-side APIs depends on what solution that API provides. Some are very simple, while others are complex and powerful, so it's up to us to determine which parts to use.



How to Learn Server-Side APIs

You can try the following strategies to learn more about specific APIs:

- Read the official documentation and practice with the provided examples.
- Reverse-engineer finished code to see how something was accomplished.
- Build something from scratch and debug it using the Chrome DevTools.
- Ask questions!

Instructor Demonstration

Mini Project

Today’s Goals

By the end of today’s class, you should be able to:

01 Explain the client-server model.

02 Use curl to make a simple request to an API.

03 Explain the Fetch API and why we use it.

04 Use JavaScript to render data obtained with fetch() on the page.

05 Explain the differences between Fetch, AJAX, and XHR.

06 Explain the structure of an API parameter.

Instructor Demonstration

curl Demo

Your turn - curl Debug

Follow the instructions in the Readme.md file of folder:
[02-Stu_Curl_Debug]

Suggested Time:

10 minutes

Instructor Demonstration

Create Fetch

Your turn - Create Fetch

Follow the instructions in the Readme.md file of folder:
04-Stu_Create_Fetch

Suggested Time:

15 minutes

Instructor Demonstration

Different APIs

Your turn - Reverse APIs

Follow the instructions in the Readme.md file of folder:
06-Stu_Reverse_APIs

Suggested Time:

10 minutes

Break

Instructor Demonstration

Parse JSON

Your turn - Parse JSON

Follow the instructions in the Readme.md file of folder:
08-Stu_Parse_JSON

Suggested Time:

15 minutes

Instructor Demonstration

Dynamic HTML

Your turn - Dynamic HTML

Follow the instructions in the Readme.md file of folder:
10-Stu_Demo_Dynamic

Suggested Time:

15 minutes

Questions?

The End