INTRO TO BACKEND

CODEJAM WORKSHOP 3

CODEJAM 15

NOVEMBER 14–16, 2025

TODAY'S PLAN

1. Introductions
2. Housekeeping Items
3. Backend Development Overview
4. Creating an API
5. CRUD Endpoints & Postman
6. Demo

MEET THE TEAM

ASK ANY OF OUR TEAM MEMBERS IF YOU HAVE A QUESTION!

All slides and materials for all workshops
can be found on our GitHub
https://github.com/mcgillcodejam/CodeJam_Resources

BEFORE WE GET STARTED:

Please take a quick minute to fill out this form!

BEFORE WE GET STARTED:

- Make sure you've installed:
  - VS Code (or any IDE)
  - Node.js
- Ask a mentor if you need help installing

IF YOU'RE CONFUSED AT ANY POINT, PLEASE ASK QUESTIONS!

We are here to help you

BACKEND OVERVIEW

BREAKING DOWN WHAT BACKEND DEVELOPMENT MEANS

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WHAT IS BACKEND?

- Back-end development is all about building the "behind the scenes" part of websites and apps.
- It handles things like storing data, running logic, and making sure information gets from one part to another.

BACK-END COMPONENTS

What makes up the “Backend” of a web-app?

1. The Server - Receives requests from browsers, processes them and then sends back the responses.

2. The Application (APIs) - The core software running on the server that contains the logic for how the application behaves.
   - APIs define how the backend components communicate with each other, as well as with front-end applications and external services.

3. The Database - Stores, organizes and manages all the application data

HOW DO THESE COMPONENTS ACTUALLY WORK?

The API is a set of rules

It dictates the way different web pages, apps, or computers can ask the backend for information, add new info, or change/delete things.

These rules have various structures, with the most common being REST.

What is the REST structure?

- Every URL or 'route' represents something you can do:
  - Get information
  - Add new things
  - Update things or delete things

API OPTIONS:

Use an existing API:

- Connect to a public API that someone else has already built.

Pros:
- Allows you to easily read data using GET requests.
- Requires less setup

Cons:
- Often read-only so you can’t add or change any data.
- Must follow someone else’s rules
- Might need special tokens or signups for some APIs

Create your own API:

- Build an API yourself with Node and Express to be able to decide how it works, what data it has, and how people use it.

Pros:
- Full control: GET, PUT, POST, DELETE
- Design endpoints your way for any topics

Cons:
- Takes more time and resources
- Requires continuous maintenance
- Designing for loads is challenging

HOW DO WE CREATE A REST-FUL API?

STEP-BY-STEP OF HOW TO CREATE YOUR OWN API

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CHECKPOINT!

Ask a mentor if you have any questions so far

MORE API OPTIONS

WHAT IF WE WANT TO DO MORE THAN JUST GET INFORMATION?

INTRODUCING...

CRUD

Create

- Adding something new
- E.g., adding a new animal to a list
- This uses the POST method.

Read

- Look at or get information
- E.g., listing an animals name
- This uses the GET method

Update

- Changing something
- E.g., editing an animal's name
- This uses the PUT method

Delete

- Removing a specific element
- E.g., deleting an animal from the list
- This uses the DELETE method.

Each CRUD action matches a type of HTTP request and a URL (or route).

POSTMAN

HOW DO WE USE THE CRUD ENDPOINTS?

POSTMAN

What?

Postman is an all-in-one API platform used to build, collaborate on, and test APIs.

Why?

Postman allows you to add, view, update, and remove data correctly.
Helpful tool for sending all types of requests to your API, and allows you to test all parts of your API easily even if you don't have a front end yet.

How?

Postman works by
1. Sending requests
2. Processes requests
3. Sends the results of the request back to you

Then repeats as needed, making it helpful for debugging your endpoints.

DEMO TIME!

Remember to ask for help if you are stuck!

ADDITIONAL BACKEND RESOURCES

Backend Overview

- Setting up a MERN tech stack
- Visual roadmap for Backend Development

Postman

- The basics of using Postman.
- Setting up Postman to test your API

APIs:

- Understanding APIs
- Free collection of APIs
- Connecting to External APIs (Video)

Other Resources

Check out our GitHub for more Web Dev resources!
https://github.com/mcgillcodejam/CodeJam_Resources

PLEASE FILL OUT THIS FEEDBACK FORM!