

# SYLLABUS

THE COMPLETE WEB  
DEVELOPMENT  
BOOTCAMP

## Back-end Development

### THE UNIX COMMAND LINE

- How to use basic bash commands in a Unix/Linux Terminal.
- How to manipulate files and folders without needing a graphical user interface.
- How to download and install to your computer using command line.

### GIT GITHUB AND VERSION CONTROL

- Using git for version control and collaboration
- Git forking, branching and cloning
- Using GitHub as a remote repository
- Checkout and rolling back changes with git
- Using git and GitHub with Xcode

### NODE.JS

- Explore the components of back-end development, working with an MVC framework
- Apply concepts like data types, objects, methods, object-oriented programming, and classes in the context of back-end development.
- Server-Side JavaScript
- Using Node on the command line
- NPM
- JavaScript Build Processes
- Event Loop and Emitters
- File System Interaction
- Modules
- Native Node drivers

### EXPRESS.JS

- Understand how to install and use express in Node applications
- Creating Node and Express based servers
- RESTful Routing with Express
- Understand and use middleware for Node applications

### AUTHENTICATION and SECURITY

- Understand the need for authentication and keeping user details secure.
- Learn about Encryption and use encryption to keep your database secure.
- Learn and implement Hashing and Salting with bcrypt
- Using Sessions and Cookies to persist user log in sessions.
- Setting up local authentication from scratch.
- Implementing Passport to authenticate users quickly and effectively.
- Understand and use environment variables to keep secret keys secure.
- Understand and use OAuth 2.0 to log in users using Google and Facebook.

### DEPLOYMENT

- Understand hosting and deployment.
- Hosting static websites with GitHub Pages.
- Deploying server based applications with Heroku.
- Deploying Databases with Mongo Atlas.

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## Databases

### APPLICATION PROGRAM INTERFACES (APIS)

- Understand what APIs are and how they work.
  - HTTP in Depth
  - Calling APIs
  - Reading API documentation
  - Basic API Authentication
  - Server to server communication
- JSON vs. XML, sending data over the wire.

### EJS

- Understand what EJS does and how to use it with Node and Express.
- Templating with EJS
- Running code in EJS templates
- Passing data from server to template and vice versa
- Creating layouts/partials with EJS

### DATABASE FUNDAMENTALS

- Data Relationships
- Designing a Data Model
- Relational Databases
- Alternative Databases
- Entity Relationship Modelling (ERM) and Object Relational Mapping (ORM)

### SQL DATABASES

- Working with Database Schemas
- Create-Read-Update-Destroy (CRUD)
- Database Joins
- Querying SQL databases

### NOSQL DATABASES WITH MONGODB AND MONGOOSE

- Serialization
- How to model NoSQL data
- Document Databases (MongoDB)
- Create-Read-Update-Destroy (CRUD)
- NoSQL Best Practices
- Mongo Shell and command line use
- Installing MongoDB
- Mapping relationships with MongoDB
- Using an object-data modelling library (Mongoose) to work easily with your data.