SYLLABUS

THE COMPLETE WEB DEVELOPMENT BOOTCAMP

Front-end Development

WEB DEVELOPMENT FUNDAMENTALS

- Understand how websites work and how HTML, CSS and JavaScript contribute.
- Understand how the internet works.
- Start coding with HTML, CSS, and JavaScript.
- Learn and understand git, GitHub and version control.
- Use the Unix command line to become a power user and write bash commands.
- Learn key troubleshooting and debugging skills to apply to your projects.

HTML 5

- Learn the anatomy of HTML syntax to structure your websites.
- Understand the HTML boilerplate and HTML doctypes.
- How to structure text in HTML.
- How to structure HTML lists to create unordered and ordered lists.
- How to insert images using HTML
- How to create hyperlinks using anchor tags.
- Understand how to use HTML tables for content.
- How to use tables for layout.
- Learn HTML best practices.
- Understand about HTML forms and create a simple contact me form.
- HTML Divs and how to separate content for CSS styling.

CSS 3

- Understand what are cascading style sheets and how you can use it to style your website.
- How to use CSS selectors and properties.
- Learn about how to use inline, internal and external CSS.
- Understand CSS coding best practices.
- Learn about CSS sizing methods.
- Learn the anatomy of CSS syntax and structure.
- CSS specificity and implementing style hierarchy.
- Class vs. Ids and how to target each.
- CSS display and how to implement layout.
- How to use CSS static, relative and absolute positioning systems.
- Font styling using CSS and web safe fonts.
- Centering elements using CSS.
- Website design fundamentals and typography.
- How to use CSS float and clear.
- How combine CSS selectors and understand selector priority.

BOOTSTRAP 4

- Learn the fundamentals of implementing responsive web design.
- How to use Balsamiq to mockup and wireframe websites.
- The fundamentals of UI design for websites.
- How to install the Bootstrap framework.
- Understanding the Bootstrap grid layout system.
- How to use bootstrap containers to layout your website easily.
- Learn to use other Bootstrap components such as buttons.
- Adding symbols using Font Awesome.
- Learn to use Bootstrap carousels.
- Add Bootstrap cards to your website.
- Using Bootstrap navigation bars.

JAVASCRIPT ES6

- The Fundamentals of Code
- Starting code with alerts and prompts.
- Understand Variables and Data Types in JavaScript
- Variable naming in JS
- Working with strings and numbers
- Randomisation and logical operators
- Loops, collections and Conditionals.
- Functions and invocation patterns
- Discussion of ECMAScripts
- Intermediate JavaScript
- Learn to use JS Expressions, Operators, Statements and Declarations
- Object-Oriented Programming
- JS Objects and Prototypes
- `This`, Scope and Closures
- Objects and Prototypes
- Refactoring and Debugging

DOCUMENT OBJECT MODEL (DOM)

- Learn the tree structure of HTML based websites.
- Traverse through the document using object notation.
- Separation of concerns and coding best practices.
- Manipulate and change the HTML elements using your understanding of the DOM.

JQUERY

- Installing and using the jQuery framework.
- Learning about jQuery functionality

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- Introduction to functions in jQuery
- Manipulating text, styles and attributes with jQuery
- Create animations and customisations with jQuery
- Use your jQuery knowledge to make your website interactive
- Responding to user initiated events with jQuery

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

Back-end Development

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

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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

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

NOSQL 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.

SYLLABUS

THE COMPLETE WEB DEVELOPMENT BOOTCAMP

DEPLOYMENT

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

BUILDING RESTful APIs

- Understand REST and guiding principles behind API design.
- Learn to work with a MongoDB GUI Robo 3T
- Implementing GET, POST, PUT, PATCH and DELETE by creating a public API from scratch.
- Understand and use chained route handlers from Express.

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.

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