

Fundamentals Of Front End Web Development in React.

This is a one week course designed to cover the fundamental principles of using the javascript library, React, to build a responsive dynamic web application. The class will follow the general structure of content delivery prescribed in Facebook's official [react documentation](#) under the main content section.

The learning goals of this course include but not limited to the following:

1. Understanding the challenges of traditional front end development technology stack what solutions do javascript libraries present.
2. Learning the fundamentals of React and general skill of reading through the documentation that could be applicable to any other javascript library.
3. Understanding the “bigger picture” of how the web works including a basic understanding of different technologies i.e. version control and GitHub.

This course is open to any student who has completed CS111 or EA1 and or has experience coding in any other language. Basic knowledge of HTML and CSS will be an added advantage but won't be presumed.

The class will mostly be hands-on with short interesting coding quizzes and two projects: A clone of the [Google Keep WebApp](#).

Prerequisite

- Follow [this tutorial](#) to install nvm(Node Version Manager) and then subsequently use it to install Node.js
- Install Visual Studio Code(recommended) or any code editor of choice.
- Create a GitHub account
- Follow this tutorial to [install git](#)

In case you encounter any challenges working through the prerequisites, shoot an email to [Linus](#)

Day-1

Intro to Web development and Javascript

- What is the web and how do web apps work
- RESTful APIs and JSON data formats - and mention of other data format do we have.
- Basic HTML and CSS and Javascript.
- The Document Object Model(DOM) and its manipulation with Vanilla Javascript
- Using GitHub and version control.
- Assignment: Basic Html, CSS and DOM manipulation, submit through Github.

Day-2

Introduction to JSX

- Intro to React and compilation with Babel.
- Compare Vanilla javascript and how React handles the virtual DOM
- Intro to JSX.
- Styling CSS in React (Class vs ClassName)
- File arrangement and conventions in basic React application
- Exercise - Intro To JSX syntax and styling in react in [codesandbox](#)

React Components and Props

- Breaking down a website into smaller pieces as the foundation of making complex systems.
- Breaking out the React components to functions and then separate component files and import and export procedures
- Import, export and explanation of external libraries; introduction to node modules.
- Using props to pass data in components
- React dev tools

- Exercise Breaking down components further down. (using a contact app)
- Using the map and filter functions with components
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Day-3

- Node js.

- Introduction to Databases.
- Introduction to using MongoDB, set up and CRUD operations
- Project problem analysis and database design
- Building an express server in Node.js
- Integrating MongoDB using mongoose.
- Integrating MVC in backend architectural design.
- Deploying REST API.
- Testing REST API using postman.
- Homework - building, testing and deploying a restful API.

Day-4

Conditional rendering and state management

- Conditional rendering with ternary Operator and && operator(Applications in authentication)
- Introduction to State in React and what that means to UI eg applying a style to a paragraph depending on the state of variable and How would the above be achieved in vanilla javascript.
- Declarative vs Imperative js programming and why react leans to imperative.
- Hooks! - and useState.
- A mention of (Destructuring objects to make the code readable.)
- Finally, Application of Hooks in state management while handling events such as onClick. - Vanilla Js and ajax solutions to this.
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Day-5

Complex State Management and 'Bigger picture'

- React Forms.
- Changing the complex state specifically onChange while dealing with forms.
- Managing the component Tree.
- A brief recollection of the Application of the studied topics in popular platforms such as Facebook and Airbnb.
- Closing topics recommended for further study.
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