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Fullstack Web Development Tutorial Lesson 21

Today's lesson will cover

- **Object properties**
- **JavaScript Recap for React**
  - Import and Export Statements in React
  - Libraries in React
  - Async/Await in React
  - Higher-Order Functions in React
  - Shorthand Object Assignment
  - Destructuring in React
  - Spread Operator in React

JavaScript Recap for React

Import and Export Statements in React

- You can import certain variables from one file to another
- You can import entire components or functions
- You can import everything on certain file
- You can import as alias
- Essentially any normal ES6 module import export functionalities

Libraries in React

- React offers state management and side-effect features, but apart from this, it is only a component library which renders HTML for your browser. Everything else can be added from APIs (e.g. browser API, DOM API), JavaScript functionalities (e.g. map, filter, reduce) or external libraries such as:
  - React State Management
  - Routing with React Router
  - Styling Libraries in React
  - React UI Libraries
  - Animations in React
  - Visualization and Chart Libraries in React
  - Form Libraries in React
  - Data Fetching Library in React
  - React Type Checking
  - React Code Style
  - React Authentication
  - React Hosting
  - Testing in React
  - Utility Libraries for React
  - React and Immutable Data Structures
  - React Internationalization
  - Rich Text Editor in React
  - Payments in React
  - Time in React
  - React Desktop Applications
  - Mobile Development with React
  - React VR/AR

Async/Await

- Promises are everywhere in the JavaScript ecosystem and thanks to how entrenched React is in that ecosystem, they're everywhere there as well (in fact, React itself uses promises internally).
- Promises help you manage asynchronous code and are returned from many DOM APIs as well as third party libraries.

Higher order functions

- A function that accepts and/or returns another function is called a **higher-order function**.
- It's *higher-order* because instead of strings, numbers, or booleans, it goes *higher* to operate on functions.
- Higher-order functions can be showcased in React early on without introducing higher-order components.
- After learning about higher-order functions, all the fundamental knowledge is established to learn more about React's higher-order components, if you want to learn about this advanced technique in React. Moving functions around your code base is a great way to learn about the benefits of having functions as first class citizens in JavaScript.

Shorthand object assignment

- When the property name in your object is the same as your variable name, you can assign value for that property from an existing variable outside the object constructor
- Shorthand method names are also useful. In JavaScript ES6, you can initialize methods in an object more concisely.
- You are able to use computed property names to allocate values by key in an object dynamically, a handy way to generate lookup tables (also called dictionaries) in JavaScript.

Destructuring

- It's often the case that you have to access plenty of properties from your state or props in your react components. Rather than assigning them to a variable one by one, you can use destructuring assignment in JavaScript.
- Often you will not use the props but only its content, so you can destructure the content in the function signature.
- The **rest destructuring**. It is often used for splitting out a part of an object, but keeping the remaining properties in another object.

Spread operator

- The spread operator comes with three `...` but shouldn't be mistaken for the rest operator. It depends on the context where it is used. Used within a destructuring, it is as rest operator. Used somewhere else it is a spread operator.
- The spread operator literally spreads all the key value pairs of an object. In React, it comes in handy when props are just being passed down to the next component.
- Rather than passing all properties of an object property by property, you can use the spread operator to pass all key value pairs to the next component.
- Also you don't need to worry about the object's structure beforehand, because the operator simply passes *everything* to the next component.

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Self Study Assignments

To Dos

- Try to use Github pages, Netlify or Heroku to showcase live projects
- Create a game of Rock, Paper and Scissors using JS which works on console, or with interactive UI using HTML, CSS and JS however you prefer ***(If you are working on your own project where you are using JS already, feel free to ignore this task but please share the project update with Lena.)***
- Continue freecodecamp (FCC) Javascript. Ideally finish before we resume after summer.
- Continue with FCC HTML, CSS lessons. Ideally finish all the lessons by end of this month.
- If you believe FCC exercises aren't the best for you as in if you are quite advanced already, please start working on your own project and reach out to mentors for help if needed.