Attendance



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Software Saturdays Spring 2023 - Lesson 5 APIs and ReactJS

Review of the Beginner Track

- » 5 Lessons
 - ♦ HTML/CSS
 - JavaScript
 - JSX and Intro to ReactJS
 - More ReactJS
 - ♦ APIs and ReactJS
- » 2 Project Days









Review of the Intermediate Track

- » 5 Lessons
 - JSX and Intro to ReactJS
 - More ReactJS
 - APIs and ReactJS
 - Functional Components and Async Code
 - NoSQL Databases
- » 2 Project Days









Help Available

- » Recordings
 - Every Sunday
- Weekly Office Hours
- » Slack Channels
 - Every Day









Before We Begin

All content is available on Brightspace

Join the Software Saturdays Slack! https://softwaresaturdays.slack.com

- 1. #announcements
- 2. #general-discussion
- 3. #spring-2023-reactjs









Before We Begin

- » Please have a text editor to open and edit code files
 - If you do not have one, Visual Studio Code is a good choice
 - https://code.visualstudio.com/download
- » Demo files and examples are on GitHub
 - https://github.com/SoftwareSaturdays/2022-Spring -ReactJS







Before We Begin

- » We need to install NodeJS and NPM
 - https://nodejs.org/en/download/
- » NodeJS is a very customizable JavaScript toolbox
- » NPM is a JavaScript package installer









Pulling the demos

- » From Github Desktop
 - Click Add Repository -> Clone Repository -> URL
 - Paste this link: https://github.com/SoftwareSaturdays/2023-Spring-ReactJS.git
 - Switch to the "lesson5-template" branch
 - Repository -> Open with Visual Studio Code
- » From the command line:

```
git clone https://github.com/SoftwareSaturdays/2023-Spring-ReactJS.git
git checkout lesson5-template
```







Part 1: Review









JSX Review

- » JSX is used to define HTML in JavaScript
- » Can create reusable custom HTML tags
- » Foundation of ReactJS
- » Can be styled like any other HTML tag with CSS









Basic ReactJS

- » props are like parameters they can change how a React component works
- » useState is a hook that changes the state of variables
- To make a React component have an on-click, you must add the event handler to the the component











Part 2: More ReactJS









React Component Lifecycle

- » Each React component is loaded or unloaded at certain times
- » Using effects, we can do things at certain points in the component's lifecycle









Our next hook: useEffect()

- » Do something right after a component has loaded and when one of the specified dependencies is modified
- » If we specify a return function, will execute at end of component lifecycle and after everytime effect triggers
- » import { useEffect } from "react"
- » useEffect(effectFunction, dependencies)











Demo Program #1









Lists and Maps

- The JavaScript map() function creates an array by running a function on another array
- » Similar to lambdas or list comprehension in Python









Lists and Maps

» Syntax is just map, iteration variable, function, output array

let mapOutput = someArray.map((element) => element * 2);







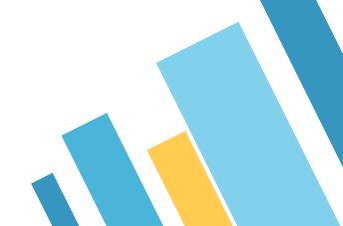
Map React Components

- You can use the map() function to create a list of JSX elements to display
- » This will be useful in a few slides!











Demo Program #2









Checkpoint #1

Using the provided 'card' component, map an array of information onto the 'card' components.











Part 3: APIs









APIs

- » An API is an Application Programming Interface
- » Used to send data to or from our code and another server
- » Used everywhere on the web EVERYTHING is an API somewhere









More about APIs

- » Web-based APIs have standardized on using JSON (JavaScript Object Notation) to send data using key-value pairs
- » The API we will use is https://pokeapi.co/









React and APIs

- » Data from an API can be mapped onto React components
- » Allows us to create a user interface that will change depending on the data we receive











Demo Program #3









Checkpoint #2

Try to write some code to download data from the API, similar to Demo 3









Thanks for coming!

Please give us some feedback!

- » Any Questions?
 - Office Hours T/TH 4:30 5:30, W 2:00 3:00
 - Ask a mentor during the meeting or on Slack









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