CLOUD CONTRAPTIONS
COMPUTER PROGRAMMING & TRAINING

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Svelte for React Programmers

Duration

3 days

Description

This Svelte for React Programmers course provides an in-depth look at Svelte, a modern JavaScript framework for building user interfaces. It covers everything from setting up a development environment, understanding the principles of template reactivity, creating static and dynamic pages, to handling forms and lifecycle events. The course also delves into more advanced topics such as state management, routing, error handling, and asynchronous data. Throughout the course, comparisons are made to React to help students understand the differences and advantages of Svelte. This course is perfect for professionals with a background in React who are looking to expand their skill set and learn a new framework.

Objectives

- Understand the fundamentals of Svelte and how it compares to React.
- Set up a development environment for Svelte and understand how it differs from React's development environment.
- Learn about SvelteKit and its features, including routing, server-side rendering, and unit testing.
- Create static and dynamic pages using Svelte, including understanding their structure and how to handle images, CSS, and JavaScript content.
- Understand the principles of template reactivity in Svelte and how it compares to React's useState hook.
- Learn about component basics and composition in Svelte, including how to handle events and data.
- Understand how to handle forms and lifecycle events in Svelte.
- Learn about state management, routing, error handling, and asynchronous data in Svelte.

Prerequisites

All students must have React, JavaScript, and HTML programming experience. Experience with CSS is helpful, but not required.

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Training Materials

All students receive comprehensive courseware covering all topics in the course. Courseware is distributed via GitHub in the form of documentation and extensive code samples. Students practice the topics covered through challenging hands-on lab exercises.

Software Requirements

Students will need a free, personal GitHub account to access the courseware. Student will need permission to install Node.js and Visual Studio Code on their computers. Also, students will need permission to install NPM Packages and Visual Studio Extensions. If students are unable to configure a local environment, a cloud-based environment can be provided.

Outline

- Introduction
  - What is Svelte?
  - What problem does Svelte solve?
  - Svelte vs. React
  - Svelta Compiler
  - Moving from React to Svelte
- Development Environment
  - Requirements
  - SvelteKit vs. React Create App
  - SvelteKit vs. Vite React Template
  - Svelte Files vs JSX Files
  - Svelte Extension for Visual Studio Code
  - Run/Debug Svelte App in Visual Studio Code
  - Svelte Extension for WebStorm
  - Run/Debug Svelte App in WebStorm
- SvelteKit Overview
  - Vite Tooling
  - Development Server
  - Routing
  - Deployment
  - Server-side rendering
  - Unit Testing
- Getting Started

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  - Exploring the REPL
  - Svelte Layout
  - Svelte Page
  - Svelte Component
  - Svelte Architecture
  - Svelte Element Directives
  - Compiling Svelte Files
- Static Pages
  - What is a Static Page?
  - What problem do Static Pages solve?
  - Static Page File Structure
  - Setting Head Content
  - HTML Content
  - CSS Content
  - Comments
  - Scoped CSS
  - Handling Images
  - Hot Module Reloading
  - Server Pre-rendering
  - Page Routing
- Dynamic Pages
  - What is a Dynamic Page?
  - What problem do Dynamic Pages solve?
  - Client-Side Rendering
  - Dynamic Page File Structure
  - JavaScript Content
  - Using Variables
  - Using Expressions
  - Data Binding
  - Class and Style Directive
  - Event Binding
  - Logic Blocks
  - Debug Tag
- Template Reactivity
  - Principles

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  - Changing Data through Assignments
  - Reactive Statements
  - Updating Arrays and Objects
  - Compared to React's useState Hook
- Component Basics
  - What is a Component?
  - What problem do Components solve?
  - Svlete Components vs React Components
  - Calling Components vs HTML Elements
  - Compared to JSX Rules for Calling Component and Elements
  - Component File Structure
  - Component Props
  - Component Events
  - Compared to React Props and Events
- Component Composition
  - What is Component Composition?
  - What problem does it solve?
  - Nested Components
  - Passing Data to Child Components
  - Handling Events and Receiving Data from Child Components
  - Component Tree Best Practices
- Event Handling
  - Event Handling Element Directives
  - DOM Events
  - Adding Event Handlers
  - In-line Handlers
  - Event Modifiers
  - Dispatching Component Events
  - Forwarding Events
- Data binding
  - Top-down data binding by default
  - Communication with props and events
  - Using two-way data binding
- Forms
  - HTML Form Element

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  - Named Form Actions
  - Form Validation
  - Form Submission
  - Progressive Enhancement
- Lifecycle
  - Mount
  - Destroy
  - Before Update
  - After Update
  - Tick
  - Compared to React useEffect Hook
- State Management
  - Stores
  - Writable Stores
  - Auto-subscriptions
  - Readable Stores
  - Derived Stores
  - Custom Stores
  - Store Bindings
  - Page Store
  - Navigation Store
  - Updated Store
- Routing
  - What is Routing?
  - What problem does Routing solve?
  - Compared to React Router
  - Pages
  - Layout
  - Route Parameters
  - API Routes
- Errors and Redirects
  - Handling Errors and Redirects
  - Error Pages
  - Fallback Errors
  - Redirects Compared to React Router Redirects

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  - Compared to React Error Boundaries
- Asynchronous Data
  - Promises & async/await
  - Fetching data from a REST API
  - Subscriptions
  - Stores
- Conclusion

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