reactrtkWS

React RTK Query Workshop

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reactrtkWS - Version: 1

2 days Course

Description:

This workshop provides a comprehensive introduction to React RTK Query, a powerful data fetching and caching tool for React applications. Participants will learn how to integrate RTK Query into their projects, manage server state, perform CRUD operations, and implement advanced features like optimistic updates, error handling, and pagination.

Intended audience:

This course is designed for React developers who want to enhance their data fetching and state management capabilities using RTK Query. It is suitable for both intermediate and advanced developers who have a basic understanding of React and Redux.

Prerequisites:

Basic knowledge of JavaScript and ES6+ syntax.
Familiarity with React and Redux.
Experience with RESTful APIs and asynchronous programming in JavaScript.
Development environment setup with Node.js and npm.

Objectives:

By the end of this workshop, participants will be able to:
- Understand the core concepts of React RTK Query.
- Set up a React application with RTK Query.
- Define and manage API services and slices.

- Perform data fetching and CRUD operations with RTK Query.
- Implement advanced features such as optimistic updates, error handling, and pagination.
- Handle authentication and authorization in API requests.
- Integrate RTK Query into larger React applications.
- Write unit tests for API slices and mock API calls.

Topics:

What is React RTK Query?

• Overview of React RTK Query and its purpose

Benefits of Using RTK Query

• Advantages of using RTK Query for data fetching and state management

Comparison with Other Data Fetching Libraries

• How RTK Query stacks up against other popular libraries like Axios, SWR, and React Query.

Setting Up the Environment

• Installing Necessary Tools and Libraries**
• Step-by-step guide to installing Node.js, npm, and React.

Creating a New React Application

• Initializing a new React project using Create React App.

Adding Redux Toolkit and RTK Query

- Instructions for adding Redux Toolkit and RTK Query to the project.

Basic Concepts of RTK Query

- Defining API Services
- Explanation and examples of defining API services in RTK Query.

Creating API Slices

- Steps to create API slices and their importance

Understanding Endpoints

- Detailed look at endpoints, their configurations, and how they work.

Fetching Data with RTK Query

- Performing GET Requests
- How to perform GET requests using RTK Query.

Displaying Data in React Components

- Techniques for displaying fetched data within React components.

Hands-On Workshop

- Building a Simple Application to Fetch and Display Data

• Practical exercise to apply learned concepts in a real-world scenario.

Q&A and Troubleshooting

• Open session for questions, troubleshooting, and interactive problem-solving.

Mutations with RTK Query

• Performing POST, PUT, DELETE Requests.
• Methods for performing various types of mutations with RTK Query.

Updating the Cache After Mutations

• Best practices for keeping the cache in sync with server data after mutations.

Advanced Features

• Optimistic Updates/
• Implementing optimistic updates to enhance user experience.

Error Handling and Retries

• Strategies for managing errors and retrying failed requests.

Pagination and Caching Strategies

• Techniques for implementing pagination and effective caching.

Authentication and Authorization

- Handling Tokens.
- Managing authentication tokens within RTK Query.

Making Authenticated Requests

- Configuring RTK Query to handle authenticated API calls.

Real-World Application Integration

- Integrating RTK Query into a Larger React Application.
- Tips and best practices for using RTK Query in complex applications.

Best Practices for Structuring API Slices

- Effective ways to organize and structure API slices in your project.

Testing with RTK Query

- Writing Unit Tests for API Slices.
- Approaches for unit testing RTK Query slices.

Mocking API Calls

- Techniques for mocking API calls in tests to ensure robust testing.

Final Project and Q&A

- Building a Mini-Project Using All Learned Concepts.
- Comprehensive project to apply all the concepts learned during the workshop.

Q&A Session

• Final Q&A session to address any remaining questions and clarifications.

Course Wrap-Up and Feedback

• Summary of the course, key takeaways, and gathering participant feedback.

React optimization

• Using useMemo and useCallback to optimize your components

RTK User experience optimization

• Prefetching information
• Defining a cache timeout

º RTK best practices and approaches

º React hook form - what is it and why do we need it

React hook form - Basic forms

• Getting started with react hook forms

React hook form - validating a form

• Adding a validation layer to our form

º Using react hook forms with RTK

º React hook forms performance best practices

º Suggestion: framer motion - an animation library for react