Scala js with React

Course outline

Module 1: Introduction to Scala.js and React

Module 1: Introduction to Scala.js and React is an introductory course that provides an overview of the fundamentals of Scala.js and React. It covers topics such as setting up a development environment, creating a basic React application, and using the Scala.js library to create interactive web applications. This module is designed to give students a solid foundation in the basics of Scala.js and React, and to provide them with the skills necessary to build their own web applications.

Lessons

- Overview of Scalajs and React
- Setting up a Scalajs and React Development Environment
- Understanding the Scalajs and React Syntax
- Working with Components in Scalajs and React
- Working with Props and State in Scalajs and React
- Working with Events in Scalajs and React
- Working with Forms in Scalajs and React
- Working with Routing in Scalajs and React
- Working with Animations in Scalajs and React
- Working with Redux in Scalajs and React
- Working with Testing in Scalajs and React
- Deploying a Scalajs and React Application

After completing this module, students will be able to:

- Understand the fundamentals of Scala.js and React, including their respective roles in web development.
- Create a basic React application using Scala.js.
- Utilize the React component model to create reusable components.
- Implement client-side routing with React Router.

Module 2: Setting up a Scala.js and React Development Environment

Module 2 of the Scala.js and React Development Environment course will teach you how to set up a development environment for building web applications with Scala.js and React. You will learn how to install and configure the necessary tools, such as Node.js, npm, and webpack, as well as how to create a basic React application. Additionally, you will learn how to debug and test your application, and how to deploy it to a web server.

Lessons

- Introduction to Scalajs and React
- Installing the Necessary Tools
- Configuring the Development Environment
- Creating a Basic React App with Scalajs
- Integrating React Components with Scalajs
- Debugging and Troubleshooting
- Deploying a Scalajs and React App
- Advanced Topics in Scalajs and React

After completing this module, students will be able to:

- Understand the basics of Scala.js and React development
- Set up a development environment for Scala.js and React
- Create a basic React application using Scala.js
- Utilize the Scala.js and React libraries to create interactive web applications

Module 3: Working with React Components in Scala.js

Module 3 of the Scala.js with React course focuses on working with React components in Scala.js. It covers topics such as creating components, passing props, and using state. It also covers how to use React lifecycle methods and how to use React context. Finally, it covers how to use React Router and how to use React Hooks.

Lessons

- Understanding React Components in Scalajs
- Creating React Components in Scalajs
- Working with Props and State in Scalajs
- React Lifecycle Methods in Scalajs
- Integrating React Components with Other Libraries in Scalajs
- Debugging React Components in Scalajs
- Optimizing React Components in Scalajs
- Testing React Components in Scalajs
- Deploying React Components in Scalajs
- Best Practices for Working with React Components in Scalajs

After completing this module, students will be able to:

- Understand the fundamentals of React components and how to create them in Scala.js
- Utilize React components to create dynamic user interfaces
- Implement React component lifecycle methods to manage state and data
- Integrate React components with other libraries and frameworks to create complex applications

Module 4: Working with React State and Props in Scala.js

Module 4 of the Scala.js with React course focuses on working with React State and Props. Students will learn how to use React's state and props to create dynamic and interactive user interfaces. They will also learn how to use React's lifecycle methods to manage state and props. Finally, they will learn how to use React's Context API to share data between components.

Lessons

- Understanding React State and Props
- Managing State with React
- Working with Props in React
- Using React Context API
- React Lifecycle Methods
- React Hooks
- Integrating React with Scalajs
- Debugging React Components in Scalajs
- Optimizing React Components in Scalajs
- Building Reusable React Components in Scalajs

After completing this module, students will be able to:

- Understand the concept of React state and props and how to use them in Scala.js
- Implement React components with state and props in Scala.js
- Utilize React state and props to create dynamic user interfaces
- Debug React components with state and props in Scala.js

Module 5: Working with React Events in Scala.js

Module 5 of the Scala.js with React course focuses on working with React events. It covers topics such as how to create and use event handlers, how to pass data to event handlers, and how to use the SyntheticEvent object. It also covers how to use the React.useCallback hook to optimize event handlers. Finally, it covers how to use the React.useRef hook to access DOM elements.

Lessons

- Understanding React Events
- React Event Handlers
- React Synthetic Events
- React Event Propagation
- React Event Listeners
- React Event Delegation
- React Event Bubbling
- React Event Capturing
- React Event Pooling
- React Event Types
- React Event Properties

- React Event Modifiers
- React Event Syntax
- React Event Performance
- React Event Best Practices

After completing this module, students will be able to:

- Understand how to use React events in Scala.js
- Create custom event handlers in Scala.js
- Utilize React event props to pass data to event handlers
- Implement event delegation in Scala.js React components

Module 6: Working with React Router in Scala.js

Module 6 of the Scala.js with React course focuses on working with React Router, a library for routing in React applications. Students will learn how to set up routes, navigate between routes, and use the React Router API to create dynamic and interactive web applications. Additionally, students will learn how to use React Router to create single page applications and how to use React Router with Redux.

Lessons

- Introduction to React Router
- Setting up React Router in Scalajs
- Configuring Routes in React Router
- Navigating with React Router
- Working with URL Parameters in React Router
- Working with Nested Routes in React Router
- Using React Router with Redux
- React Router with TypeScript
- React Router with Server-Side Rendering
- Troubleshooting React Router in Scalajs

After completing this module, students will be able to:

- Understand the fundamentals of React Router and how to use it in a Scala.js application.
- Implement routing in a Scala.js application using React Router.
- Create dynamic routes and nested routes with React Router.
- Utilize React Router to create a single page application with Scala.js.

Module 7: Working with React Context in Scala.js

Module 7 of the Scala.js with React course focuses on working with React Context. It covers topics such as creating and using contexts, passing data between components, and using context to manage state. It also covers advanced topics such as using context to manage global state and using context to create custom hooks.

Lessons

- Introduction to React Context
- Understanding the React Context API
- Creating a Custom React Context
- Using React Context with Scalajs
- Working with React Context in Scalajs
- React Context and State Management
- React Context and Performance Optimization
- React Context and Data Fetching
- React Context and Component Composition
- React Context and Error Handling

After completing this module, students will be able to:

- Understand the fundamentals of React Context and how to use it in Scala.js
- Create and manage React Context objects in Scala.js
- Utilize React Context to share data between components
- Implement React Context in a Scala.js application to manage state and data flow

Module 8: Working with React Hooks in Scala.js

Module 8 of the Scala.js with React course focuses on working with React Hooks. Students will learn how to use React Hooks to manage state and side effects in their React components, as well as how to use the Context API to share state between components. Additionally, students will learn how to use the useReducer hook to manage complex state in their applications.

Lessons

- Introduction to React Hooks
- Using useState and useEffect Hooks
- Building Custom Hooks
- Managing State with Context API and Hooks
- Integrating React Hooks with Scalajs
- Debugging React Hooks in Scalajs
- Optimizing Performance with React Hooks
- Testing React Hooks in Scalajs
- Best Practices for Working with React Hooks in Scalajs

After completing this module, students will be able to:

- Understand the fundamentals of React Hooks and how to use them in Scala.js
- Create React components using Hooks and Scala.js
- Utilize Hooks to manage state and lifecycle events in React components
- Implement custom Hooks to share logic between components

Module 9: Working with React Redux in Scala.js

Module 9 of the React with Scala.js course focuses on working with React Redux in Scala.js. Students will learn how to use the React Redux library to manage state in their React applications, as well as how to use the Redux DevTools to debug their applications. Additionally, students will learn how to use the React Router library to create routes and navigate between pages in their applications.

Lessons

- Introduction to React Redux
- Setting up a React Redux Project
- Understanding the React Redux Store
- Working with Actions and Reducers
- Connecting React Components to the Redux Store
- Using React Redux with TypeScript
- Debugging React Redux Applications
- Testing React Redux Applications
- Integrating React Redux with Other Libraries
- Advanced React Redux Patterns

After completing this module, students will be able to:

- Understand the fundamentals of React and Redux and how they work together.
- Implement React components and Redux stores in Scala.js.
- Utilize React Redux bindings to connect React components to Redux stores.
- Create and manage asynchronous actions with Redux Thunk.

Module 10: Working with React Testing Library in Scala.js

Module 10 of the Scala.js with React course focuses on working with React Testing Library. This module covers topics such as setting up a testing environment, writing tests, and debugging tests. It also covers how to use React Testing Library to test React components, as well as how to use it to test Redux applications. Finally, it covers how to use React Testing Library to test React Native applications.

Lessons

- Introduction to React Testing Library
- Writing Tests with React Testing Library
- Testing React Components with React Testing Library
- Debugging React Components with React Testing Library
- Mocking React Components with React Testing Library
- Testing React Hooks with React Testing Library
- Testing React Context with React Testing Library
- Testing React Redux with React Testing Library
- Testing React Router with React Testing Library
- Testing React Suspense with React Testing Library

After completing this module, students will be able to:

- Understand the fundamentals of React Testing Library and how to use it in Scala.js
- Create and execute unit tests for React components using React Testing Library
- Utilize the React Testing Library to test React components in a Scala.js environment
- Debug and troubleshoot React components using React Testing Library in Scala.js

Module 11: Working with React Performance Optimization in Scala.js

Module 11 of the Scala.js with React course focuses on React Performance Optimization. It covers topics such as how to identify and address performance bottlenecks, how to use React's built-in performance tools, and how to optimize React components for better performance. Additionally, the module covers techniques for optimizing React applications for better performance, such as using memoization, lazy loading, and code splitting.

Lessons

- Understanding React Performance Optimization
- Analyzing React Performance Profiling
- Optimizing React Components
- React Performance Best Practices
- React Performance Tools
- React Performance Debugging
- React Performance Optimization Strategies
- React Performance Optimization Techniques
- React Performance Optimization with Scalajs
- React Performance Optimization with Scalajs and React
- React Performance Optimization with Scalajs and React Router
- React Performance Optimization with Scalajs and Redux
- React Performance Optimization with Scalajs and Webpack
- React Performance Optimization with Scalajs and Babel
- React Performance Optimization with Scalajs and TypeScript
- React Performance Optimization with Scalajs and Immutablejs
- React Performance Optimization with Scalajs and GraphQL
- React Performance Optimization with Scalajs and Nodejs
- React Performance Optimization with Scalajs and Expressjs
- React Performance Optimization with Scalajs and Jest

After completing this module, students will be able to:

- Understand the fundamentals of React performance optimization
- Identify and address performance bottlenecks in React applications
- Utilize the React Profiler to identify and address performance issues
- Implement best practices for optimizing React components for performance

Module 12: Working with React Animations in Scala.js

Module 12 of the Scala.js with React course covers how to use React Animations to create dynamic and engaging user interfaces. It covers topics such as creating basic animations, using the React Transition Group library, and integrating animations with React components. This module also provides an introduction to the React Motion library and how to use it to create more complex animations.

Lessons

- Introduction to React Animations
- Understanding the Basics of React Animations
- Working with React Transition Group
- Working with React Motion
- Working with React Spring
- Working with React Router Animations
- Working with React Native Animations
- Working with React Transition Group and React Motion
- Working with React Transition Group and React Spring
- Working with React Transition Group and React Router Animations
- Working with React Transition Group and React Native Animations
- Working with React Transition Group and React Transition Group and React Motion
- Working with React Transition Group and React Transition Group and React Spring
- Working with React Transition Group and React Transition Group and React Router Animations
- Working with React Transition Group and React Transition Group and React Native Animations
- Creating Custom Animations with React
- Troubleshooting React Animations
- Best Practices for Working with React Animations

After completing this module, students will be able to:

- Understand the fundamentals of React Animations and how to use them in Scala.js.
- Create custom animations using React Transition Group and React Spring.
- Utilize the React Transition Group and React Spring libraries to create complex animations.
- Implement animations in a React application using the React Transition Group and React Spring libraries.

Module 13: Working with React Native in Scala.js

Module 13 of the React course with Scala.js covers how to use React Native in Scala.js. It covers topics such as setting up a React Native project, creating components, styling, and debugging. It also covers how to use React Native APIs and how to integrate with existing native code. Finally, it covers how to deploy a React Native application to the App Store.

Lessons

- Introduction to React Native and Scalajs
- Setting up a React Native Environment with Scalajs
- Understanding the React Native Components
- Working with React Native APIs

- Integrating React Native with Scalajs
- Debugging React Native Apps with Scalajs
- Building Cross-Platform Apps with React Native and Scalajs
- Deploying React Native Apps with Scalajs
- Best Practices for Working with React Native and Scalajs
- Troubleshooting React Native and Scalajs Apps

After completing this module, students will be able to:

- Understand the fundamentals of React Native and how to use it in a Scala.js project.
- Create React Native components using Scala.js and integrate them into a React Native application.
- Utilize the React Native APIs to access device features such as the camera, GPS, and more.
- Debug and deploy a React Native application written in Scala.js.

Module 14: Working with React Native Web in Scala.js

Module 14 of the React course with Scala.js covers how to use React Native Web in Scala.js. It covers topics such as setting up a React Native Web project, creating components, styling, and debugging. It also covers how to use React Native Web with other libraries such as Redux and React Router. Finally, it covers how to deploy a React Native Web application.

Lessons

- Introduction to React Native Web
- Setting up a React Native Web Project
- Working with React Native Components
- Integrating React Native Web with Scalajs
- Debugging React Native Web Applications
- Building and Deploying React Native Web Applications
- Working with React Native Web APIs
- Working with React Native Web Animations
- Working with React Native Web Navigation
- Working with React Native Web Styling

After completing this module, students will be able to:

- Understand the fundamentals of React Native Web and how to use it in a Scala.js project.
- Create React Native Web components and use them in a Scala.js project.
- Utilize React Native Web APIs to create a responsive user interface.
- Integrate React Native Web with other libraries and frameworks to create a complete application.

Module 15: Working with React Native for Web in Scala.js

Module 15 of the React course for Scala js with React Native for Web covers the basics of working with React Native for Web in Scala.js. It covers topics such as setting up a React Native for Web project, creating components, styling, and debugging. It also covers how to use React Native for Web with other

libraries such as Redux and React Router. Finally, it covers how to deploy a React Native for Web application.

Lessons

- Introduction to React Native for Web in Scalajs
- Setting up a React Native for Web in Scalajs Project
- Understanding the React Native for Web in Scalajs Architecture
- Working with Components in React Native for Web in Scalajs
- Working with Styles in React Native for Web in Scalajs
- Working with Navigation in React Native for Web in Scalajs
- Working with Data in React Native for Web in Scalajs
- Working with Animations in React Native for Web in Scalajs
- Working with Third-Party Libraries in React Native for Web in Scalajs
- Debugging and Troubleshooting React Native for Web in Scalajs

After completing this module, students will be able to:

- Understand the fundamentals of React Native for Web and how to use it in a Scala.js project.
- Develop React Native for Web components using Scala.js.
- Utilize React Native for Web APIs to create interactive user interfaces.
- Deploy a React Native for Web application to a web server.

Module 16: Working with React Native for Desktop in Scala.js

Module 16 of the React course for Scala.js covers how to use React Native for Desktop in Scala.js. It covers topics such as setting up the environment, creating a basic React Native application, and using the React Native components to create a desktop application. It also covers how to debug and deploy the application.

Lessons

- Introduction to React Native for Desktop
- Setting up a React Native for Desktop Environment
- Understanding the React Native for Desktop Architecture
- Working with Components in React Native for Desktop
- Styling Components in React Native for Desktop
- Working with Data in React Native for Desktop
- Debugging React Native for Desktop Applications
- Deploying React Native for Desktop Applications
- Integrating React Native for Desktop with Scalajs
- Best Practices for Working with React Native for Desktop in Scalajs

After completing this module, students will be able to:

- Understand the fundamentals of React Native for Desktop and how to use it in Scala.js.
- Develop and deploy React Native for Desktop applications using Scala.js.

- Utilize the React Native for Desktop APIs to create user interfaces and interact with the operating system.
- Integrate React Native for Desktop with other libraries and frameworks to create powerful applications.

Module 17: Working with React Native for Mobile in Scala.js

Module 17 of the React course for Scala.js covers the basics of working with React Native for mobile development. It covers topics such as setting up a React Native project, creating components, styling, and debugging. It also covers how to use the React Native APIs to access device features such as the camera, GPS, and more. Finally, it covers how to deploy a React Native app to the App Store and Google Play.

Lessons

- Introduction to React Native for Mobile Development
- Setting up a React Native Development Environment
- Understanding the React Native Component Lifecycle
- Working with React Native Components
- Working with React Native APIs
- Debugging React Native Applications
- Building and Deploying React Native Applications
- Integrating React Native with Native Platforms
- Working with Third-Party Libraries in React Native
- Creating Custom Components in React Native

After completing this module, students will be able to:

- Understand the fundamentals of React Native and how to use it to create mobile applications.
- Develop mobile applications using React Native and Scala.js.
- Utilize the React Native components and APIs to create a user interface.
- Debug and deploy React Native applications to the App Store or Google Play.

Module 18: Working with React Native for TV in Scala.js

Module 18 of the React course for Scala.js covers the basics of working with React Native for TV. It covers topics such as setting up the development environment, creating a basic React Native for TV application, and using the React Native for TV components. It also covers how to debug and deploy the application. This module is designed to give developers the skills they need to create interactive and engaging TV applications using React Native.

Lessons

- Understanding the Basics of React Native for TV
- Setting up a React Native for TV Development Environment
- Building a React Native for TV App
- Working with React Native for TV Components

- Integrating React Native for TV with Scalajs
- Debugging React Native for TV Apps
- Deploying React Native for TV Apps
- Optimizing Performance of React Native for TV Apps
- Testing React Native for TV Apps
- Troubleshooting React Native for TV Apps

After completing this module, students will be able to:

- Understand the fundamentals of React Native for TV and how to use it to create interactive applications.
- Develop and deploy React Native for TV applications using Scala.js.
- Utilize the React Native for TV components to create user interfaces.
- Integrate React Native for TV with other technologies such as Redux and GraphQL.

Module 19: Working with React Native for VR in Scala.js

This module will teach you how to use React Native for Virtual Reality (VR) development in Scala.js. You will learn how to create a VR application using React Native and Scala.js, and how to integrate the two technologies to create a powerful and immersive experience. You will also learn how to use the React Native VR library to create 3D objects and animations, and how to use the React Native VR API to interact with the user. Finally, you will learn how to deploy your application to a VR platform.

Lessons

- Introduction to React Native for VR
- Setting up a React Native for VR Environment
- Understanding the React Native for VR Architecture
- Working with React Native for VR Components
- Integrating React Native for VR with Scalajs
- Debugging React Native for VR Applications
- Deploying React Native for VR Applications
- Optimizing React Native for VR Performance
- Creating Custom React Native for VR Components
- Working with React Native for VR Animations

After completing this module, students will be able to:

- Understand the fundamentals of React Native and how to use it to create virtual reality applications.
- Develop and deploy React Native applications for virtual reality platforms.
- Utilize the Scala.js library to create React Native components for virtual reality applications.
- Integrate React Native components into existing virtual reality applications.

Module 20: Working with React Native for AR in Scala.js

This module will teach you how to use React Native for Augmented Reality (AR) in Scala.js. You will

learn how to create a React Native application that uses AR technology to create interactive experiences. You will also learn how to use the React Native APIs to access device sensors and create 3D models. Finally, you will learn how to deploy your application to the web and mobile devices.

Lessons

- Introduction to React Native for AR
- Setting up a React Native for AR Environment
- Understanding the React Native for AR Architecture
- Working with React Native for AR Components
- Integrating React Native for AR with Scalajs
- Debugging React Native for AR Applications
- Deploying React Native for AR Applications
- Best Practices for Working with React Native for AR
- Troubleshooting React Native for AR Issues
- Advanced Topics in React Native for AR

After completing this module, students will be able to:

- Understand the fundamentals of React Native and its components
- Develop and deploy React Native applications for AR
- Utilize the React Native AR library to create interactive AR experiences
- Integrate React Native with Scala.js to create powerful applications