Testing Libraries: Jest, React Testing Library (RTL), and Enzyme

Learning Objectives

By the end of this lesson, you will be able to:

- Identify the key features and role of Jest to ensure code reliability and quality
- Distinguish between React Testing Library (RTL) and Enzyme libraries to make informed decisions about the most appropriate testing approach for React applications
- Get an insight into the core concepts and data flow of Redux architecture to effectively manage and maintain the application state in a predictable manner

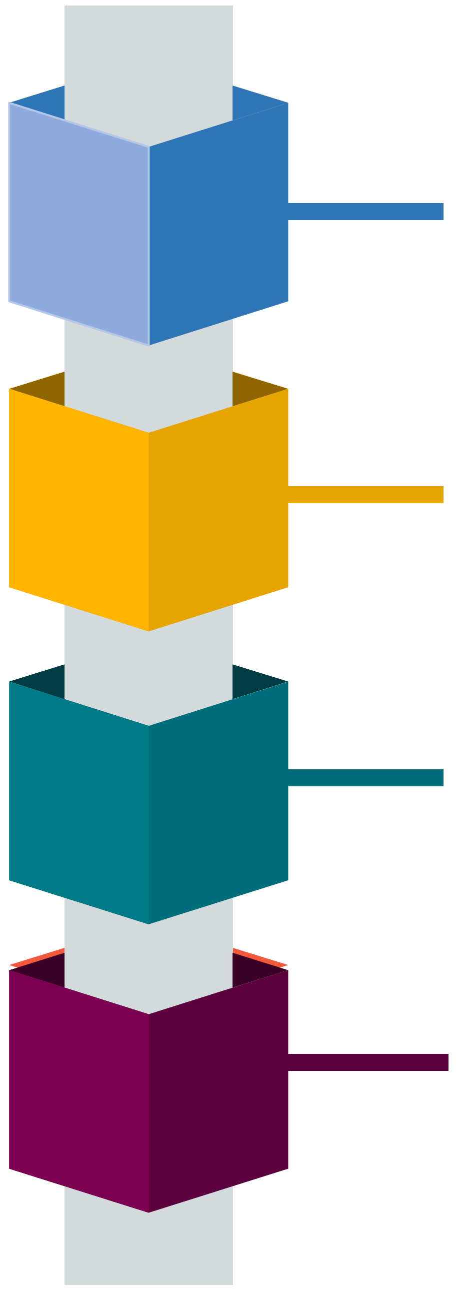
Introduction to Jest

Jest

It is a JavaScript testing framework commonly used for testing JavaScript code, including React applications.

Its ease of setup, fast execution, and comprehensive features have made it a popular choice among developers.

Some Key Features of Jest



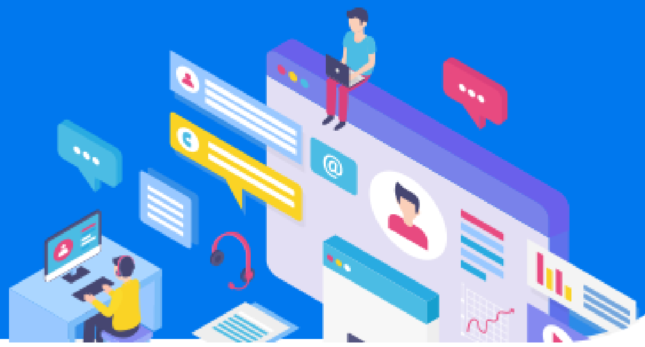
Requires no configuration

Uses snapshot testing to track changes in the user interface (UI)

Offers an interactive mode that allows limiting the number of tests to run in different ways without editing the test code

Can use different Visual Studio Code extensions to run Jest tests without running a command on the terminal

Creating a React Test

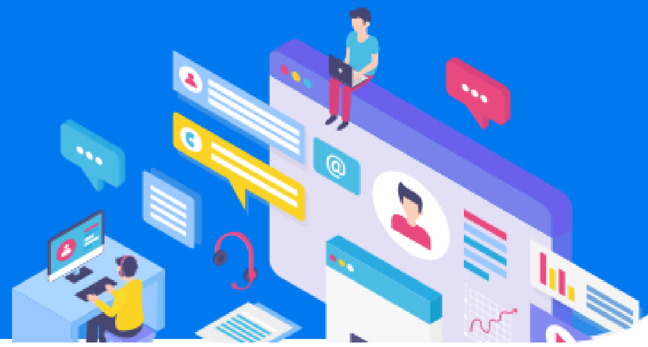


Problem Statement:

Duration: 15 min

You have been assigned a task to create a simple React test with built-in Jest testing configuration to showcase the efficiency and ease of setting up a robust testing environment.

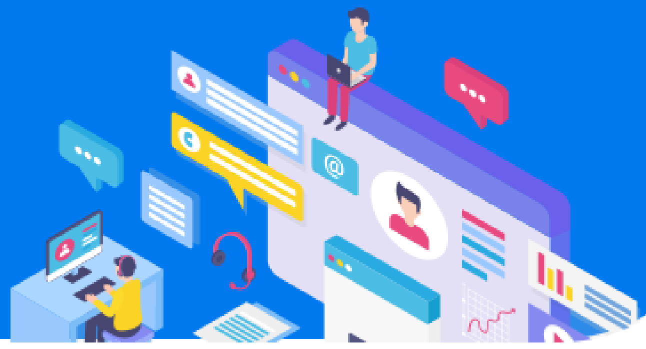
Assisted Practice: Guidelines



Steps to be followed:

1. Set up the React Jest project
2. Verify testing dependencies
3. Verify app.js component and app.test.js testing file
4. Test the application

Creating a React Component Login Test

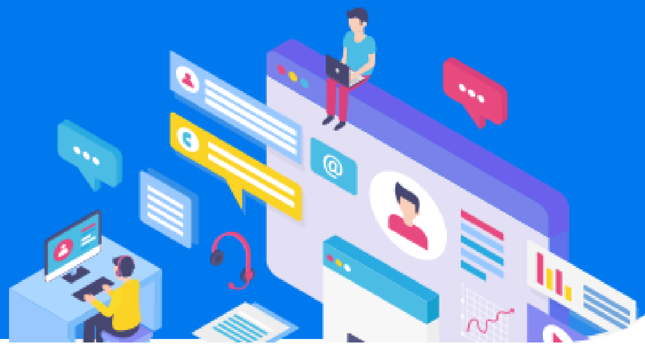


Problem Statement:

Duration: 15 min

You have been assigned a task to create a login component testing with user credentials to display the success or failure message.

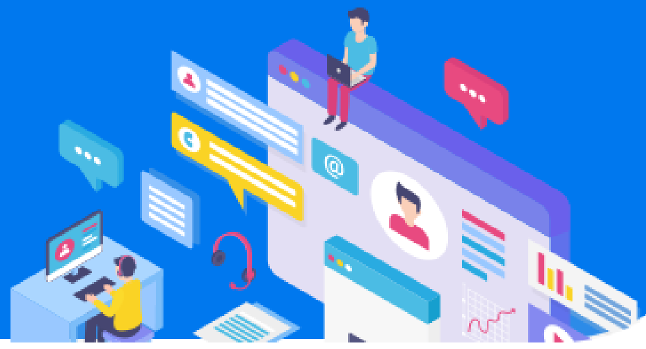
Assisted Practice: Guidelines



Steps to be followed:

1. Set up a React project
2. Verify the test dependencies
3. Create the components
4. Test the application

Creating a React Redux Testing Application



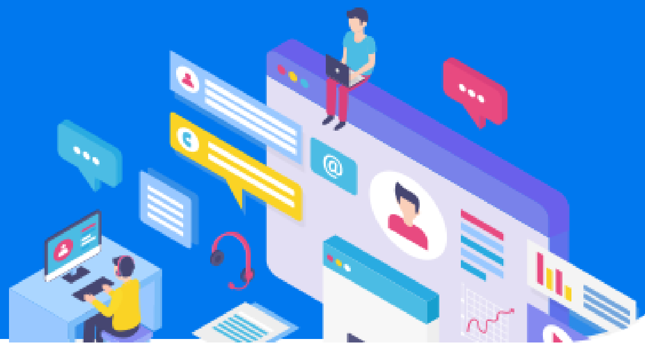
Problem Statement:

Duration: 15 min

You have been assigned a task to create a React Redux testing application for adding and displaying names using Jest and the testing library.

ASSISTED PRACTICE

Assisted Practice: Guidelines



Steps to be followed:

1. Create and set up for React app
2. Create the characterSlice.js and buildStore.js file
3. Create an App.js and
4. App.test.js file
5. Test the application

Introduction to RTL

RTL

It is a user-centric approach for testing React components.

RTL features

Interacts with Document Object Model (DOM) elements through various queries

Simulates user actions

Tests components from the user's perspective

Assists with asynchronous codes

Introduction to Enzyme

Enzyme

It is a testing utility that provides more granular control over component testing and has the following features:

Tests a component as a unit

Tests with a full rendering lifecycle

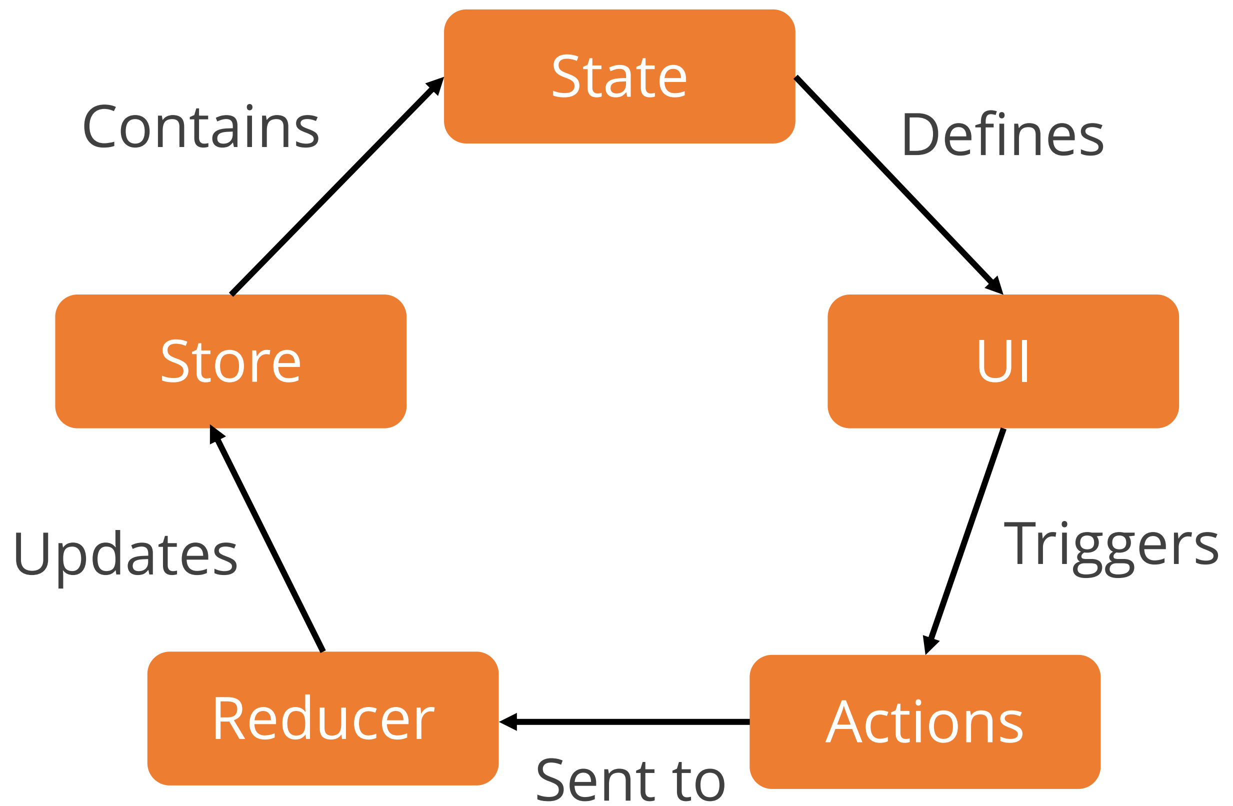
Allows developers to test the output and internal workings of React components

Provides components for static HTML and analyzes the HTML structure

Testing Redux: Actions and Reducers

Testing Redux

This involves verifying that the actions and reducers work as expected, and this can be explained with the help of its architecture.



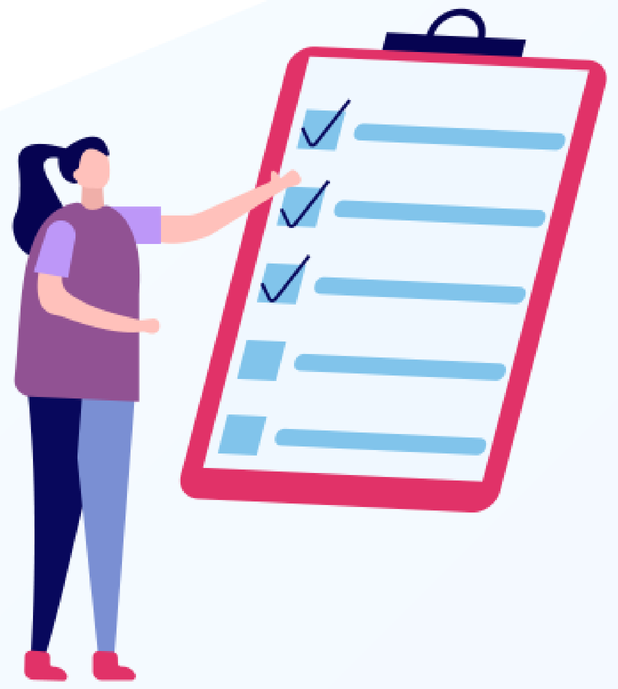
Redux architecture

- **Actions** are plain JavaScript objects that represent an intention to change the state.
- **Reducers** are pure functions that take the current state and an action as arguments and return a new state.
- **Store** is the object that brings together the state, actions, and reducers.

This architecture follows a strict unidirectional data flow.

Key Takeaways

- Jest is a JavaScript testing framework designed to ensure the correctness of any JavaScript codebase.
- RTL is ideal for developers who want to write tests that closely mimic how users interact with their applications.
- Enzyme is suited for scenarios where there is a need to dive deeper into the components' internals, offering more control at the expense of potentially more brittle tests.
- The Redux architecture follows a strict unidirectional data flow.



Knowledge Check

Knowledge Check
1

Which among the following corresponds to the feature of RTL?

A. Tests a component as a unit

B. Allows testing with a full rendering lifecycle

C. Helps in handling asynchronous code

D. Allows developers to test both the output and the internal workings of React components

Knowledge Check

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C. Helps in handling asynchronous code

D. Allows developers to test both the output and the internal workings of React components

The correct answer is **C**

RTL helps in handling asynchronous code, making it easier to test components that rely on asynchronous data fetching or rendering.