Unit Testing

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What is a Test Case?
A Test Case is a set of actions executed to verify a particular feature or functionality of your software application. A Test Case contains test steps, test data, precondition, postcondition developed for specific test scenarios to verify any requirement. The test case includes specific variables or conditions, using which a testing engineer can compare expected and actual results to determine whether a software product is functioning as per the requirements of the customer.

What is Jest Framework?
Jest is an open-source testing framework built on JavaScript, designed majorly to work with React and React Native based web applications. Often, unit tests are not very useful when run on the frontend of any software. This is mostly because unit tests for the front-end require extensive, time-consuming configuration. This complexity can be reduced to a great extent with the Jest framework.

There are three ways to run Jest:
The Jest CLI, which is available on npm, allows you to run Jest in Node.js or as a normal JavaScript program.
The Karma runner runs tests against headless Chromium in an environment similar to a web browser.
The Jest website has more information on how to get started with the framework.

Development Frameworks Used : React, MongoDB
Testing Framework Used : Jest

We installed the required components using the terminal.

We have written a testing code which is shown below

Testing Code : (VS Code IDE)

```
1    import { render, screen } from '@testing-library/react';
2    import App from './App';
3
4    test('renders learn react link', () => {
5      render(<App />);
6      const linkElement = screen.getByText(/learn react/i);
7      expect(linkElement).toBeInTheDocument();
8    });
9
```

After writing test code, write **npm test** in the command line to execute. After executing, we get the below out which shows that tests are passed successfully.

Output: (On Terminal Window)

```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL


 PASS  src/App.test.js (9.899 s)
   √ renders learn react link (102 ms)

Test Suites: 1 passed, 1 total
Tests:       1 passed, 1 total
Snapshots:   0 total
Time:        18.937 s
Ran all test suites.


Watch Usage: Press w to show more.
```