

Lesson 04 Demo 02

Implementing Nested Routes in a React Application

Objective: To demonstrate the implementation of nested routes in a React application for creating a structured and hierarchical navigation system

Tools required: Visual Studio Code and Node.js

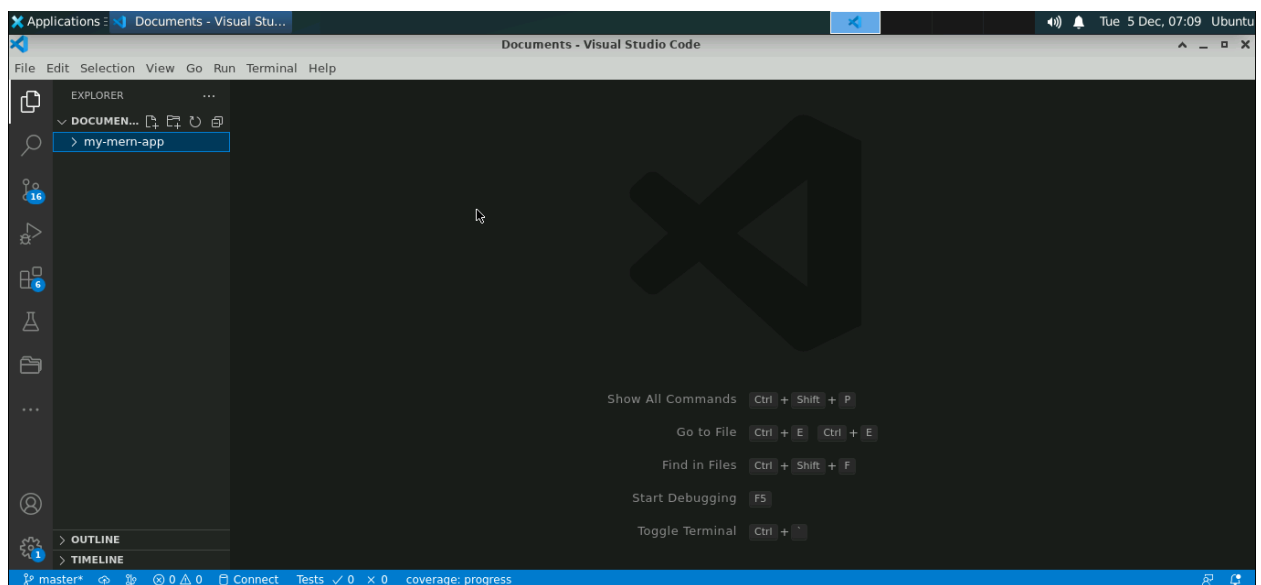
Prerequisites: A basic understanding of nested routes in React

Steps to be followed:

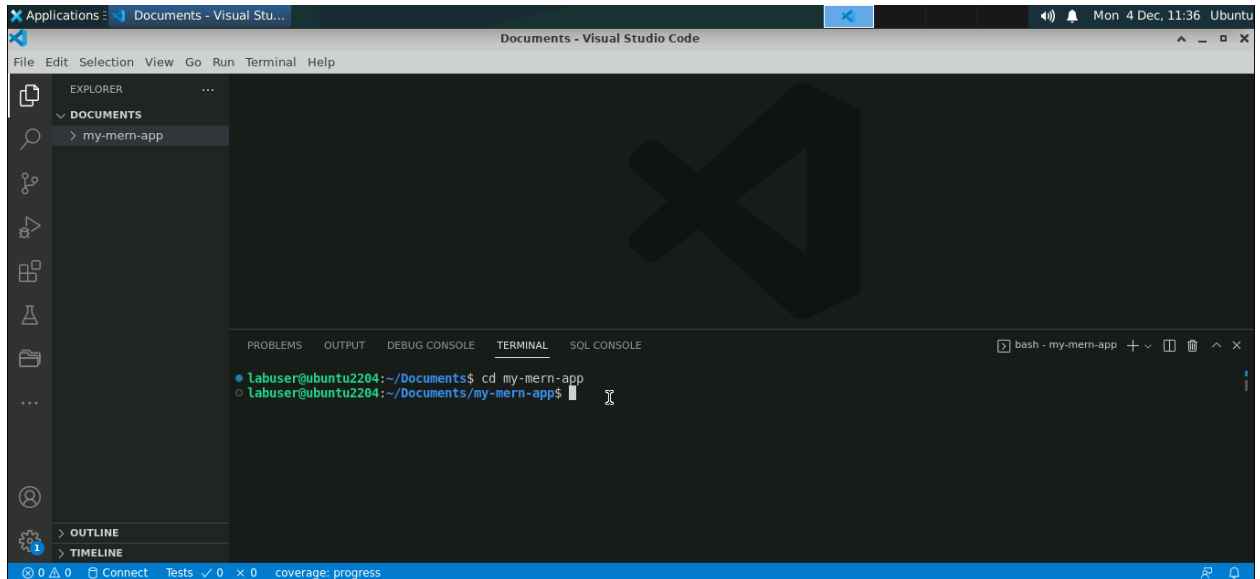
1. Set up a new React app
2. Install React Router
3. Create component files
4. Create nested routes
5. Run the application

Step 1: Set up a new React app

1.1 Open Visual Studio Code and create a new folder named my-mern-app



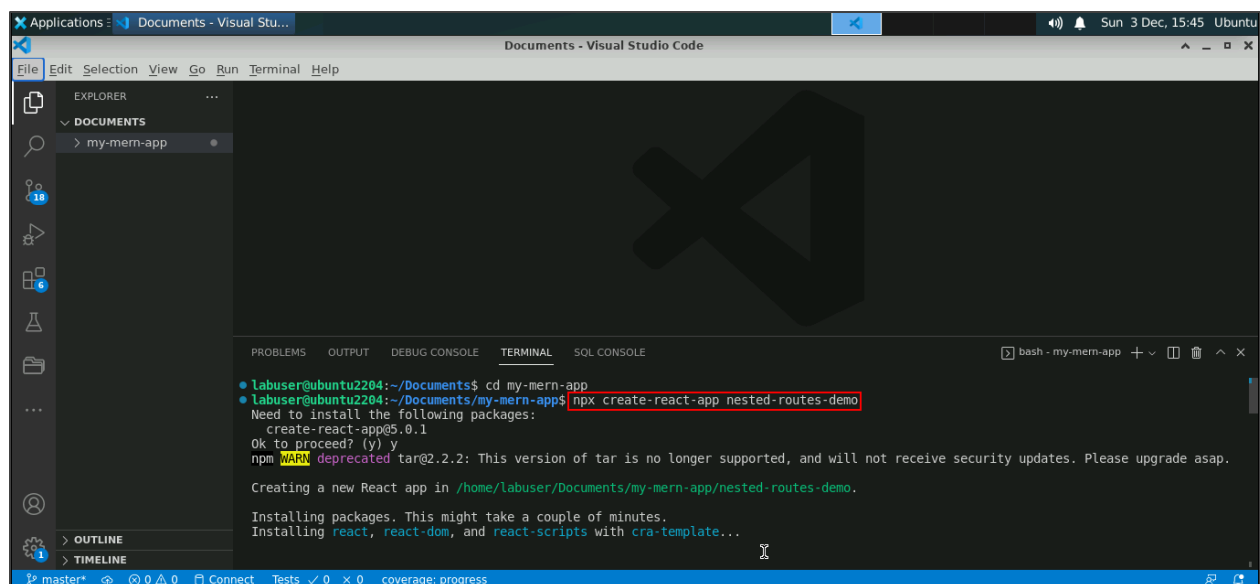
- 1.2 Open the terminal and navigate to the **my-mern-app** folder using the following command:
cd my-mern-app



The screenshot shows the Visual Studio Code interface. The Explorer panel on the left shows the 'DOCUMENTS' folder expanded, with 'my-mern-app' selected. The Terminal panel at the bottom shows the following commands and output:

```
labuser@ubuntu2204:~/Documents$ cd my-mern-app
labuser@ubuntu2204:~/Documents/my-mern-app$
```

- 1.3 Initialize a new React app using the following command:
npx create-react-app nested-routes-demo



The screenshot shows the Visual Studio Code interface. The Explorer panel on the left shows the 'DOCUMENTS' folder expanded, with 'my-mern-app' selected. The Terminal panel at the bottom shows the following commands and output:

```
labuser@ubuntu2204:~/Documents$ cd my-mern-app
labuser@ubuntu2204:~/Documents/my-mern-app$ npx create-react-app nested-routes-demo
Need to install the following packages:
  create-react-app@5.0.1
Ok to proceed? (y) y
npm WARN deprecated tar@2.2.2: This version of tar is no longer supported, and will not receive security updates. Please upgrade asap.
Creating a new React app in /home/labuser/Documents/my-mern-app/nested-routes-demo.
Installing packages. This might take a couple of minutes.
Installing react, react-dom, and react-scripts with cra-template...
```

1.4 Navigate to the **nested-routes-demo** folder using the following command:
cd nested-routes-demo

The screenshot shows the Visual Studio Code interface. The Explorer panel on the left shows the file structure of a project named 'my-mern-app'. The terminal panel at the bottom shows the following output:

```

We suggest that you begin by typing:

  cd nested-routes-demo
  npm start

Happy hacking!
npm notice New major version of npm available! 8.19.2 -> 10.2.4
npm notice Changelog: https://github.com/npm/cli/releases/tag/v10.2.4
npm notice Run npm install -g npm@10.2.4 to update!
npm notice
labuser@ubuntu2204:~/Documents/my-mern-app$ cd nested-routes-demo
labuser@ubuntu2204:~/Documents/my-mern-app/nested-routes-demo$

```

Step 2: Install React Router

2.1 Install React Router using the following command:
npm install react-router-dom

The screenshot shows the Visual Studio Code interface. The Explorer panel on the left shows the file structure of a project named 'my-mern-app'. The terminal panel at the bottom shows the following output:

```

npm notice
labuser@ubuntu2204:~/Documents/my-mern-app$ cd nested-routes-demo
labuser@ubuntu2204:~/Documents/my-mern-app/nested-routes-demo$ npm install react-router-dom

added 3 packages, and audited 1535 packages in 4s

246 packages are looking for funding
  run `npm fund` for details

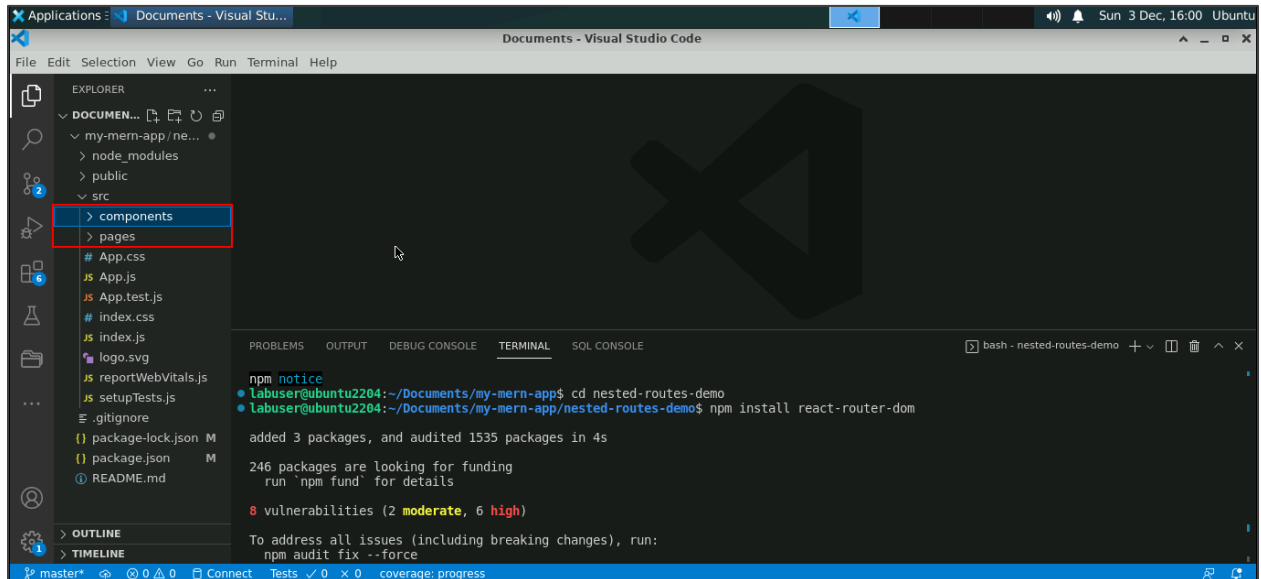
8 vulnerabilities (2 moderate, 6 high)

To address all issues (including breaking changes), run:
  npm audit fix --force

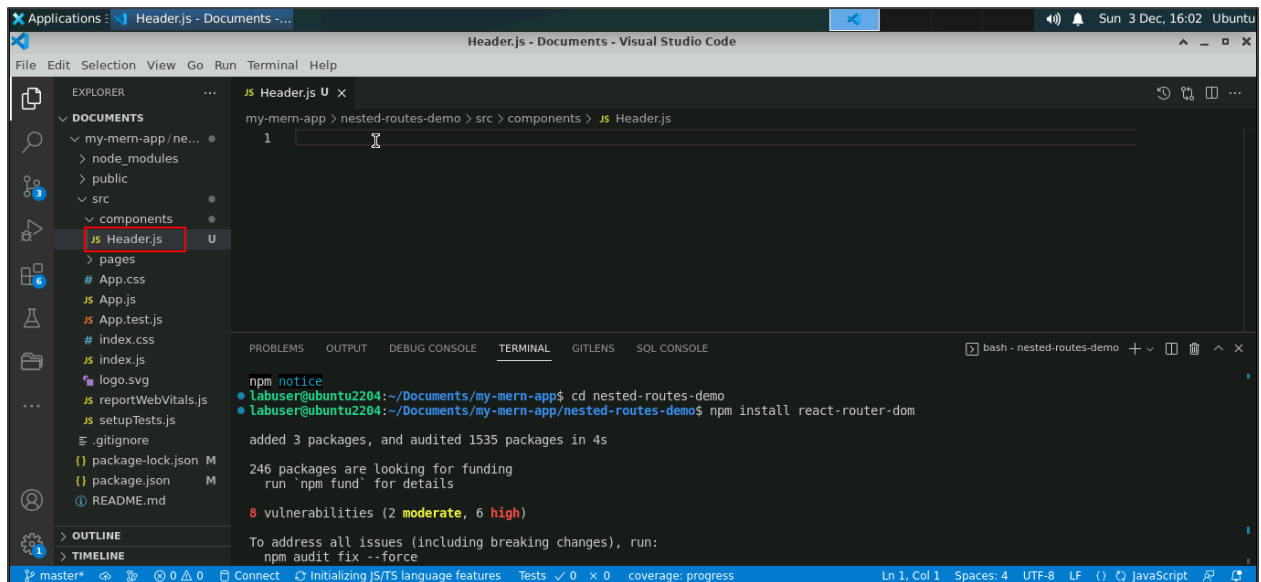
```

Step 3: Create component files

3.1 In the **src** folder, create two new folders named **components** and **pages**



3.2 Inside the **components** folder, create a new JavaScript file named **Header.js**

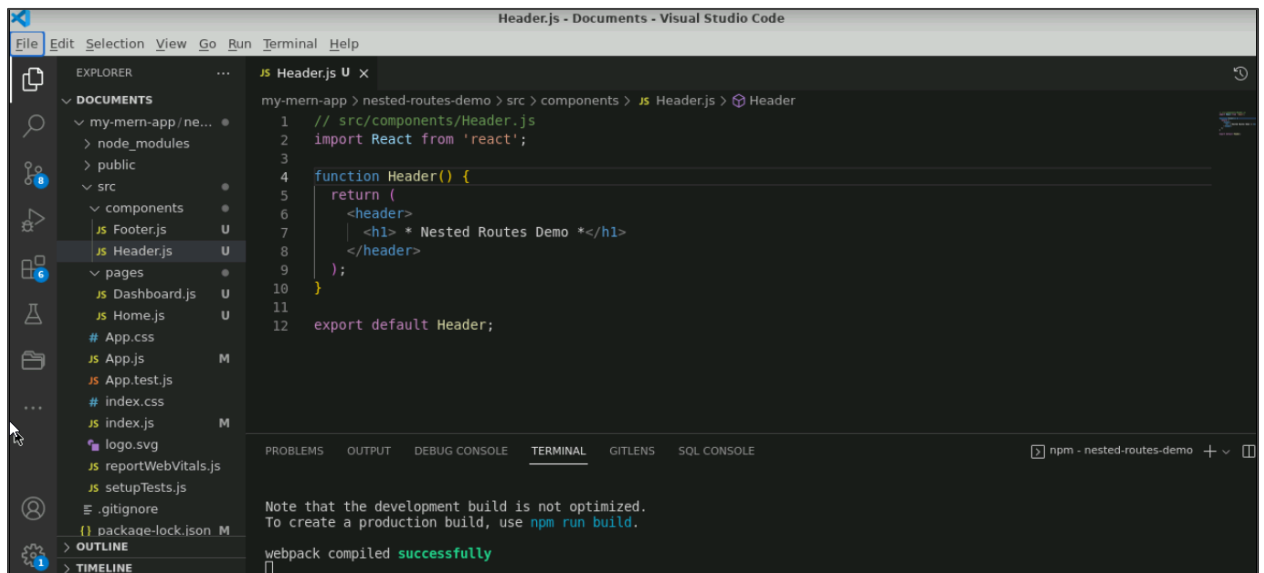


3.3 Add the following code to the **Header.js** file:

```
// src/components/Header.js
import React from 'react';

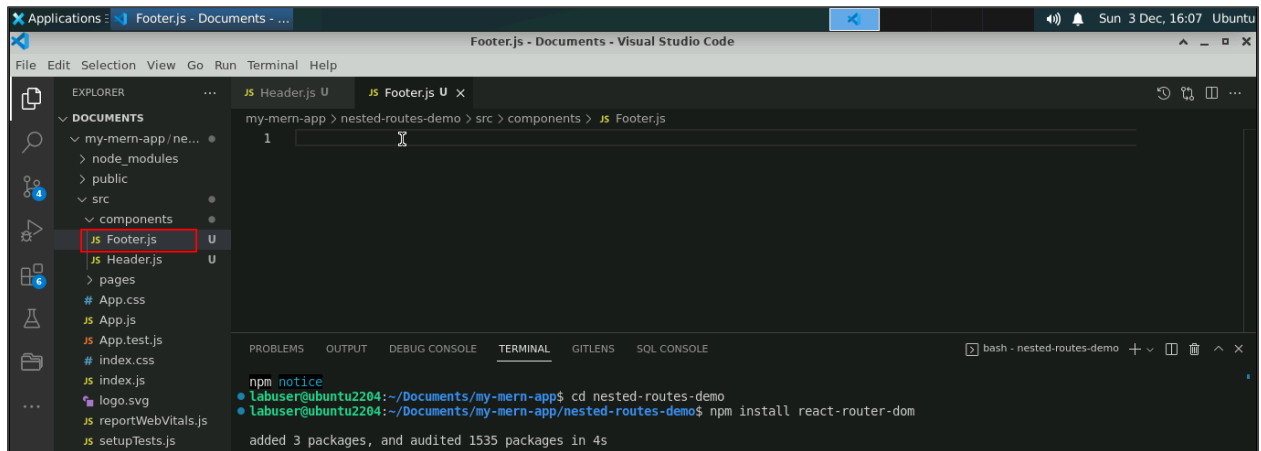
function Header() {
  return (
    <header>
      <h1> * Nested Routes Demo *</h1>
    </header>
  );
}

export default Header;
```



Note: Save the file

3.4 Inside the **components** folder, create a new JavaScript file named **Footer.js**

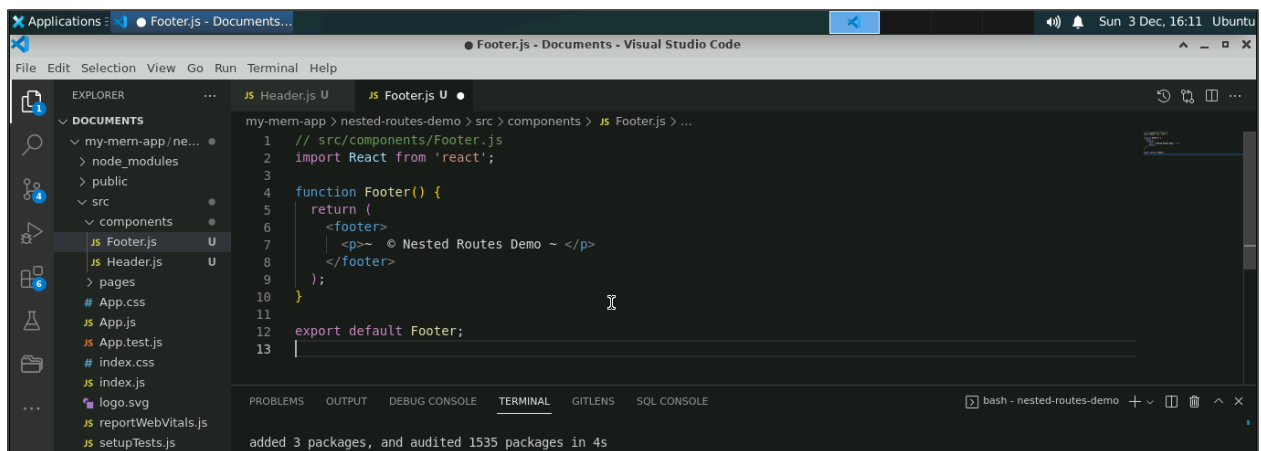


3.5 Add the following code to the **Footer.js** file:

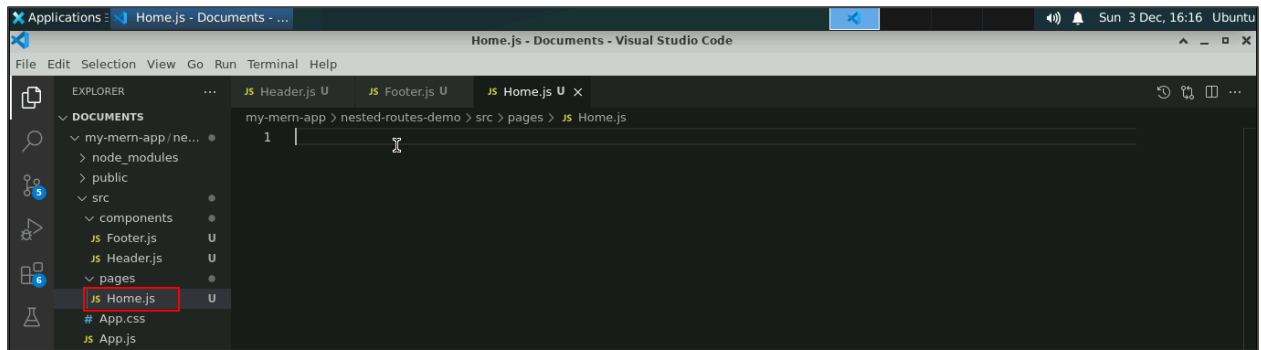
```
// src/components/Footer.js
import React from 'react';
```

```
function Footer() {
  return (
    <footer>
      <p>~ @ Nested Routes Demo ~ </p>
    </footer>
  );
}
```

```
export default Footer;
```



3.6 Inside the **pages** folder, create a new JavaScript file named **Home.js**

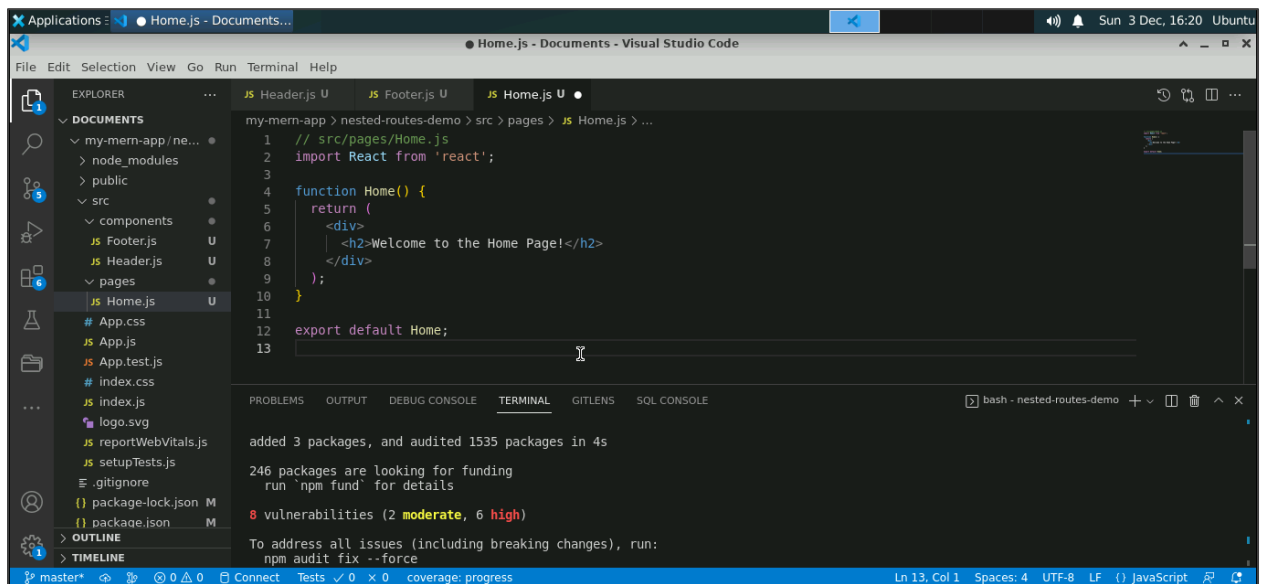


3.7 Add the following code to the **Home.js** file:

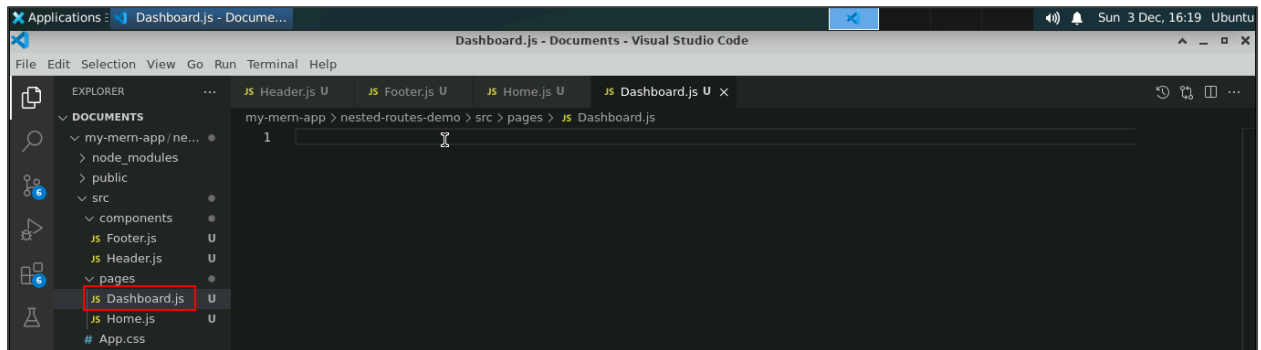
```
// src/pages/Home.js
import React from 'react';
```

```
function Home() {
  return (
    <div>
      <h2>Welcome to the Home Page!</h2>
    </div>
  );
}
```

export default Home;



3.8 Inside the **pages** folder, create a new JavaScript file named **Dashboard.js**

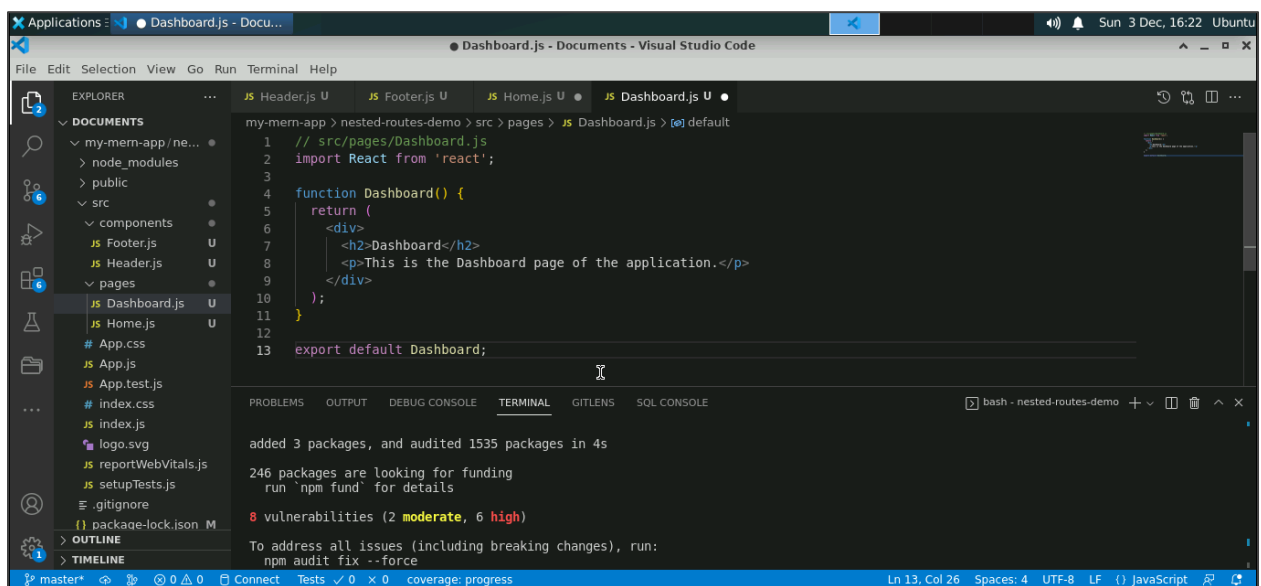


3.9 Add the following code to the **Dashboard.js** file:

```
// src/pages/Dashboard.js
import React from 'react';
```

```
function Dashboard() {
  return (
    <div>
      <h2>Dashboard</h2>
      <p>This is the Dashboard page of the application.</p>
    </div>
  );
}
```

```
export default Dashboard;
```



Step 4: Create nested routes

4.1 Replace the existing code in the **App.js** file with the following code:

```
// src/App.js
import React from 'react';
import { Routes, Route, Link } from 'react-router-dom';
import Header from './components/Header';
import Footer from './components/Footer';
import Home from './pages/Home';
import Dashboard from './pages/Dashboard';

function App() {
  return (

    <div>
      <Header />

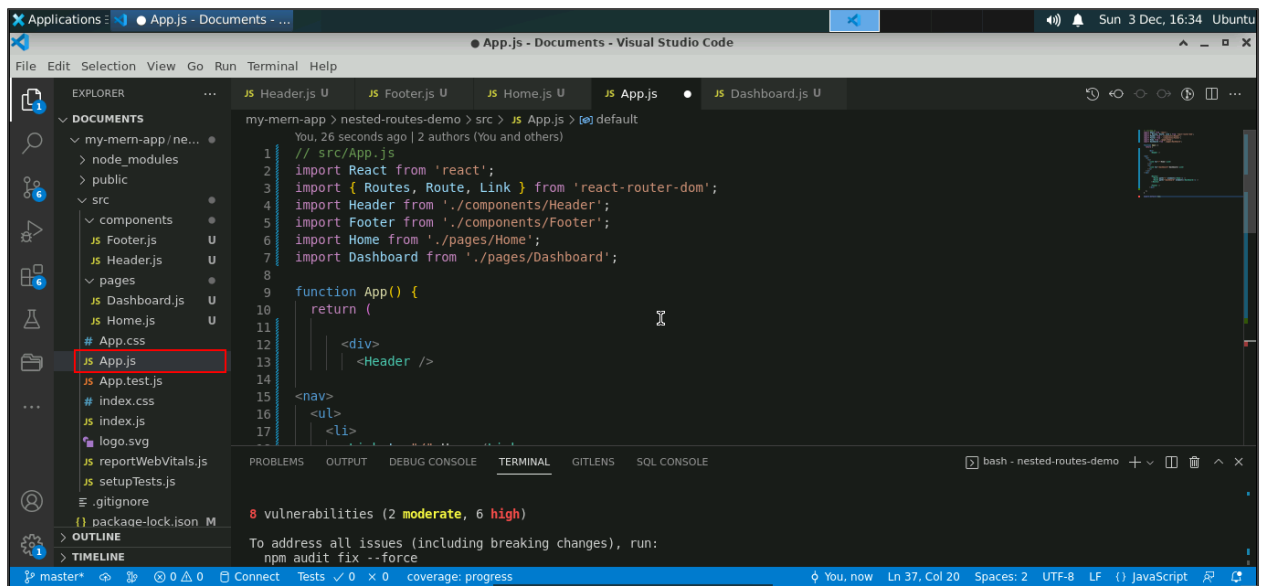
      <nav>
        <ul>
          <li>
            <Link to="/">Home</Link>
          </li>
          <li>
            <Link to="/dashboard">Dashboard</Link>
          </li>
        </ul>
      </nav>

      <Routes>
        <Route path="/" element={<Home/>} />
        <Route path="/dashboard" element={<Dashboard/>} />
      </Routes>

      <Footer />
    </div>

  );
}

export default App;
```



4.2 Replace the existing code in the **index.js** file with the following code:

```
import React from 'react';
import ReactDOM from 'react-dom/client';
import './index.css';
import App from './App';
import reportWebVitals from './reportWebVitals';
import {BrowserRouter} from 'react-router-dom'

const root = ReactDOM.createRoot(document.getElementById('root'));
root.render(
  <BrowserRouter>
    <React.StrictMode>
      <App />
    </React.StrictMode>
  </ BrowserRouter>

);

// If you want to start measuring performance in your app, pass a function
// to log results (for example: reportWebVitals(console.log))
// or send to an analytics endpoint. Learn more: https://bit.ly/CRA-vitals
reportWebVitals();
```

The screenshot shows the Visual Studio Code interface with the 'index.js' file open. The file contains the following code:

```

1 import React from 'react';
2 import ReactDOM from 'react-dom/client';
3 import './index.css';
4 import App from './App';
5 import reportWebVitals from './reportWebVitals';
6 import {BrowserRouter} from 'react-router-dom'
7
8 const root = ReactDOM.createRoot(document.getElementById('root'));
9 root.render(
10   <BrowserRouter>
11     <React.StrictMode>
12       <App />
13     </React.StrictMode>
14   </BrowserRouter>
15 );
16
17

```

The Explorer sidebar on the left shows the project structure, with 'index.js' highlighted. The Terminal at the bottom shows the command 'npm start' being executed, resulting in the message: '8 vulnerabilities (2 moderate, 6 high) To address all issues (including breaking changes), run:'. A red box highlights the 'index.js' file in the Explorer.

Note: Save all the files

Step 5: Run the application

5.1 Start the React development server using the following command:

npm start

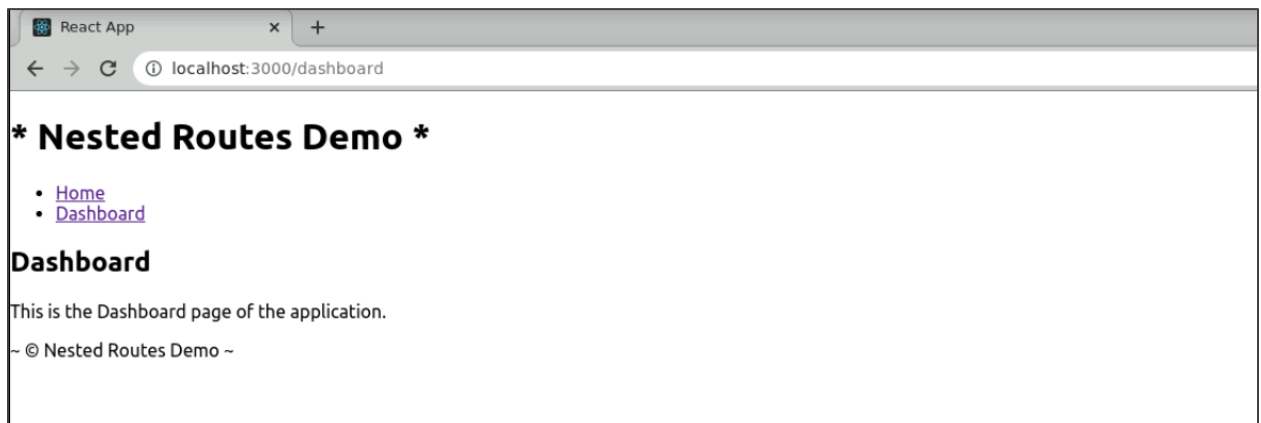
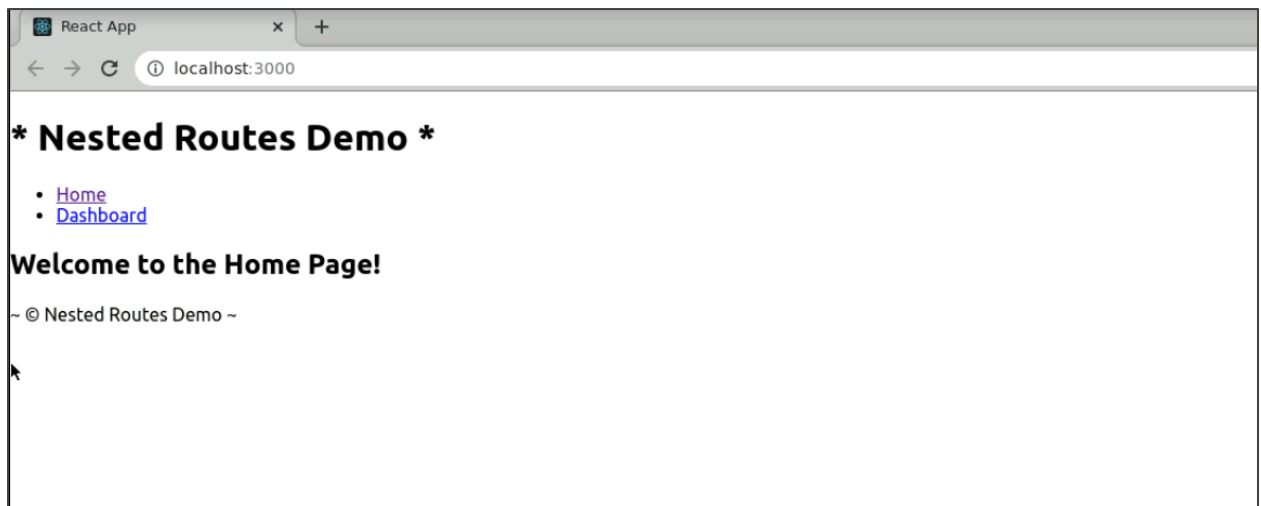
The screenshot shows the Visual Studio Code interface with the 'index.js' file open. The file contains the following code:

```

8 const root = ReactDOM.createRoot(document.getElementById('root'));
9 root.render(
10   <BrowserRouter>
11     <React.StrictMode>
12       <App />
13     </React.StrictMode>
14   </BrowserRouter>
15 );
16
17 // If you want to start measuring performance in your app, pass a function
18 // to log results (for example: reportWebVitals(console.log))
19 // or send to an analytics endpoint. Learn more: https://bit.ly/CRA-vitals
20 reportWebVitals();
21
22
23

```

The Explorer sidebar on the left shows the project structure, with 'index.js' highlighted. The Terminal at the bottom shows the command 'npm start' being executed, resulting in the message: 'labuser@ubuntu2204:~/Documents/my-mern-app/nested-routes-demo\$ npm start' followed by 'nested-routes-demo@0.1.0 start' and 'react-scripts start'. A red box highlights the 'npm start' command in the terminal.



By following these steps, you have successfully set up a React application with nested routes, allowing seamless navigation and rendering of different pages or components.