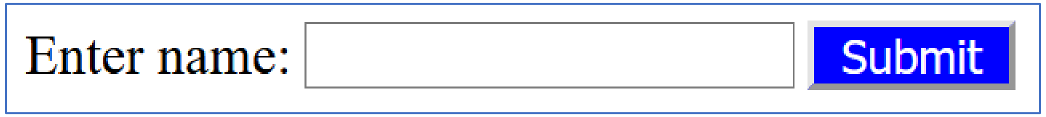
Component & Routes

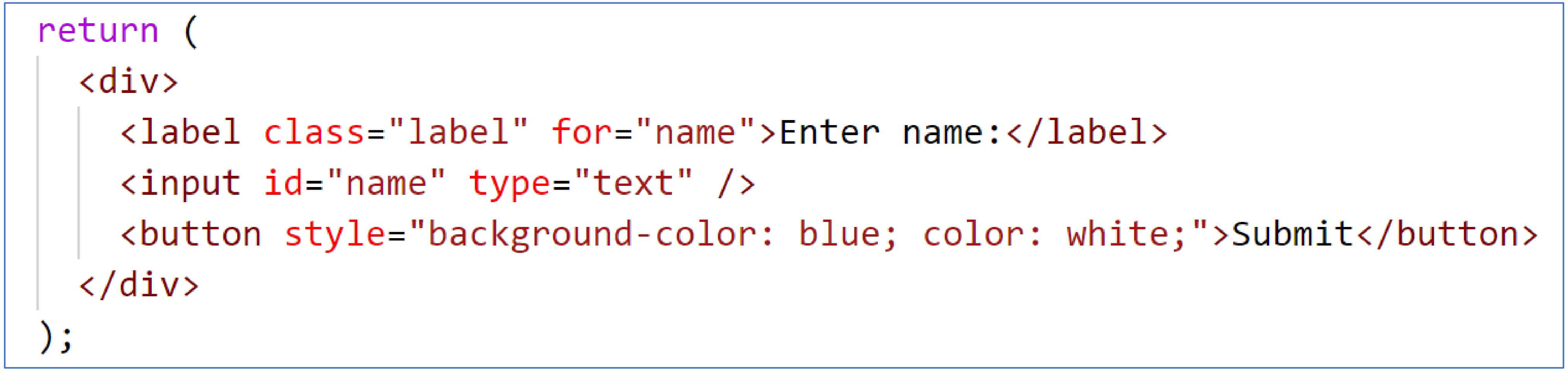
JSX?

- Special dialect of JS (its no HTML)
- Browsers don’t understand JSX code! We write JSX then run tools to convert it into normal JS
- Very similar in form and function to HTML with a couple differences
- JSX vs HTML
    - Adding custom styling to an element uses different syntax
    - Adding a class to an element uses different syntax
    - JSX can reference JS variables

HTML to JSX

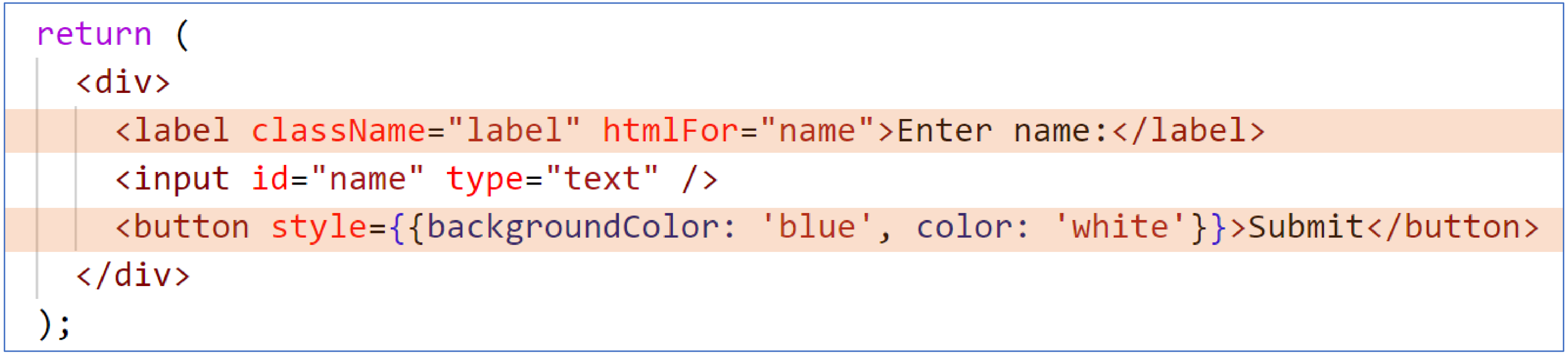


HTML



```
return (
  <div>
    <label class="label" for="name">Enter name:</label>
    <input id="name" type="text" />
    <button style="background-color: blue; color: white;">Submit</button>
  </div>
);
```

JSX



```
return (
  <div>
    <label className="label" htmlFor="name">Enter name:</label>
    <input id="name" type="text" />
    <button style={{backgroundColor: 'blue', color: 'white'}}>Submit</button>
  </div>
);
```

Differences In Attributes

- All DOM properties and attributes (including event handlers) should be lower camelCased. Ex: tabIndex, onClick, readOnly, …
- The exception is aria-* and data-* attributes, which should be lowercased. Ex: aria-label, data-id, …
- checked, defaultChecked: for controlled and uncontrolled component
- value, defaultValue: for controlled and uncontrolled component
- className ⇔ class in HTML
- htmlFor ⇔ for in HTML

- onChange:

  Realtime change (in HTML, fire when data changed)

- selected:

  If you want to mark an <option> as selected, reference the value of that option in the value of its <select> instead. Check out “The select Tag” for detailed instructions.

- style

  The style attribute accepts a JavaScript object with lower camelCased properties rather than a CSS string. Ex: backgroundColor, fontWeight, …

- Tag validation

  Validate opening & closing tag. Ex: <input type=“text” />

Integrating Bootstrap framework in React

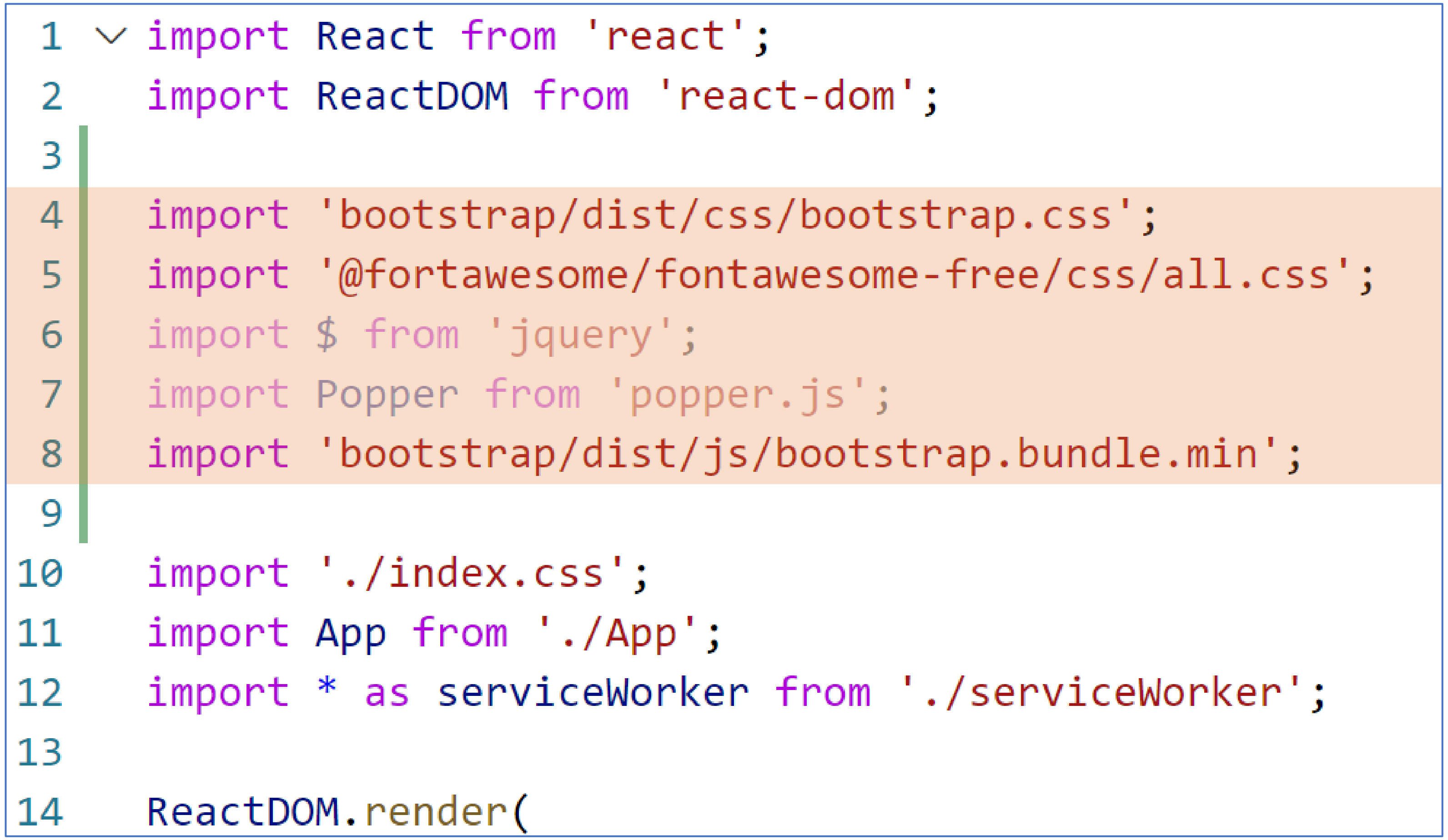
- Installing required bootstrap packages:

```
npm i bootstrap jquery popper.js
```

- Installing font-awesome package

```
npm i @fortawesome/fontawesome-free
```

- Add libraries into index.js file

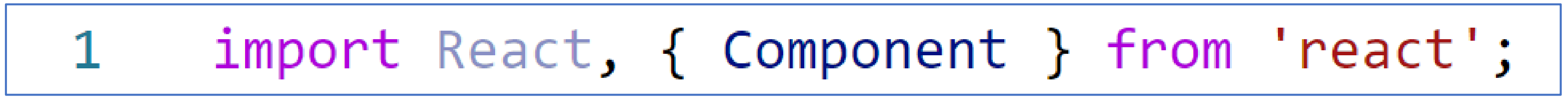


```
import React from 'react';
import ReactDOM from 'react-dom';

import 'bootstrap/dist/css/bootstrap.css';
import '@fortawesome/fontawesome-free/css/all.css';
import $ from 'jquery';
import Popper from 'popper.js';
import 'bootstrap/dist/js/bootstrap.bundle.min';

import './index.css';
import App from './App';
import * as serviceWorker from './serviceWorker';

ReactDOM.render(
```

Creating “Header” components

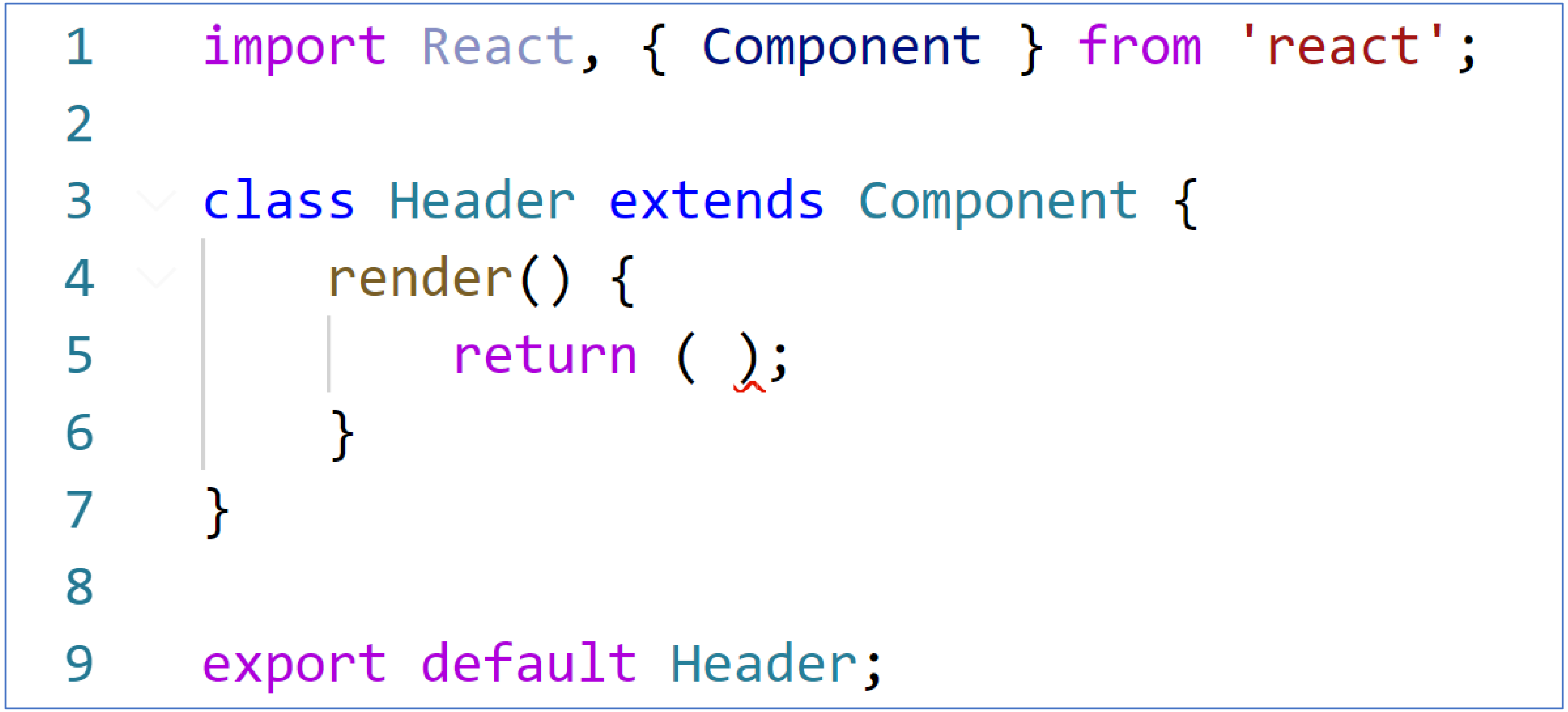
- In “src” folder, create a new folder named “containers”.
- Create a new file named “header.jsx” in “containers” folder.

  (naming convention: **lower camel case**)
- Type imrc: to add import React and Component



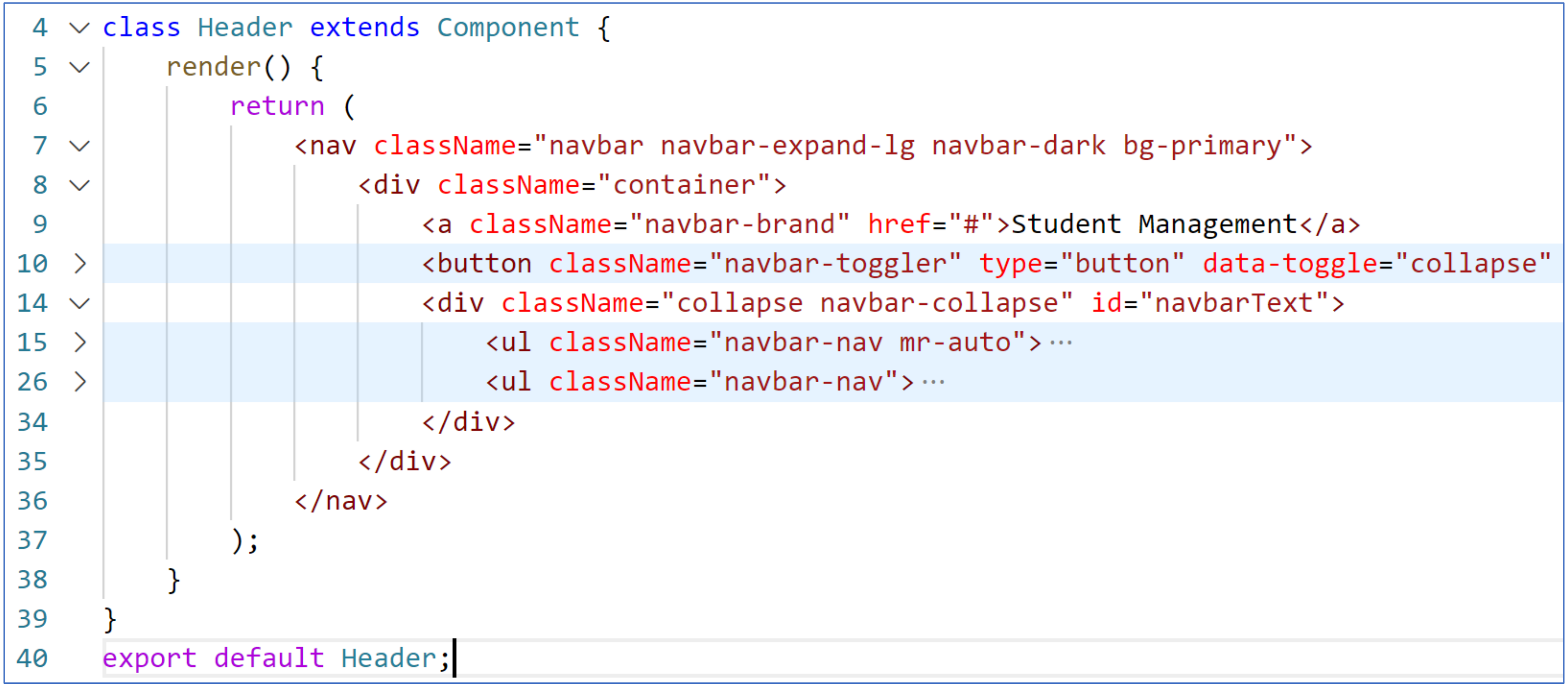
```
import React, { Component } from 'react';
```

- Type cc: to create class component, then type “Header”



```
import React, { Component } from 'react';

class Header extends Component {
    render() {
        return ( );
    }
}

export default Header;
```

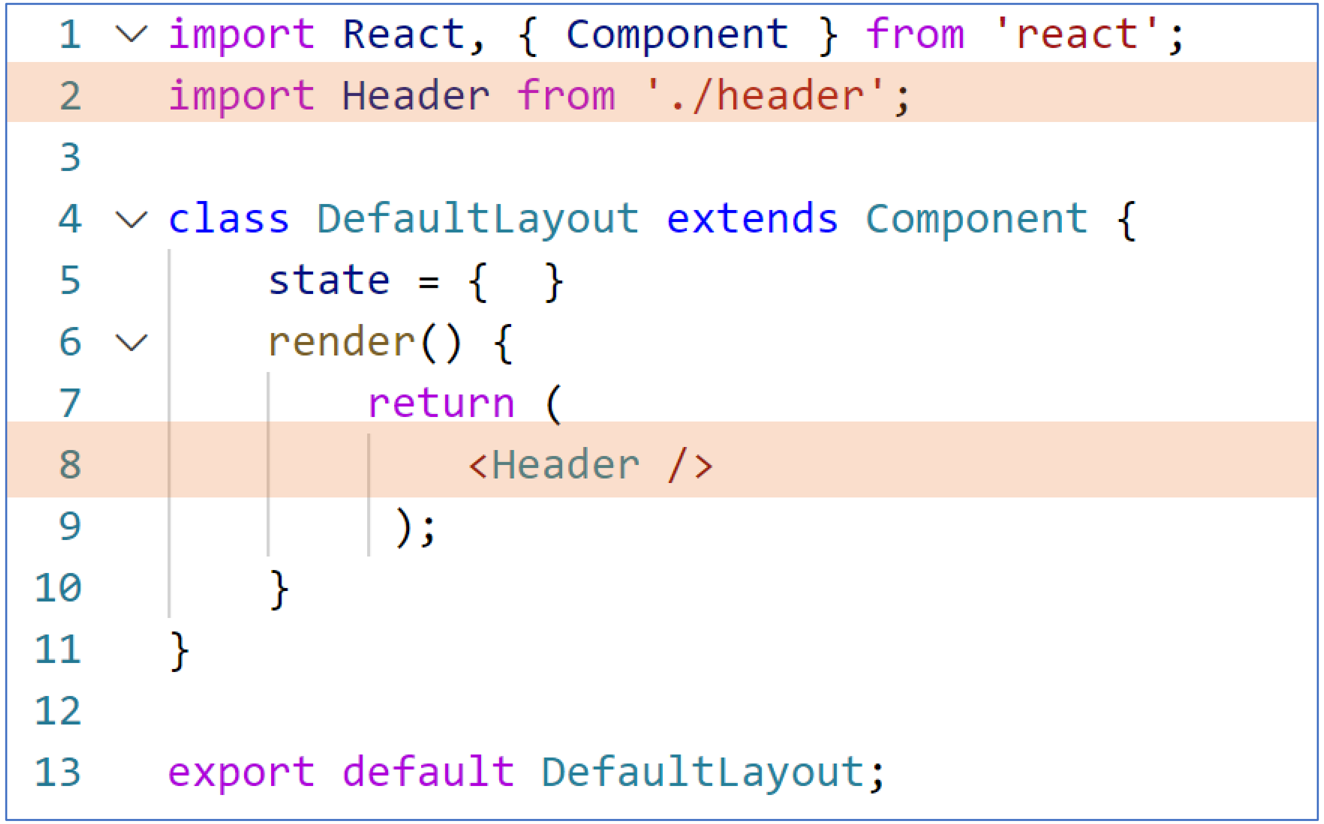
- Add HTML to render() method:



```
class Header extends Component {
    render() {
        return (
            <nav className="navbar navbar-expand-lg navbar-dark bg-primary">
                <div className="container">
                    <a className="navbar-brand" href="#">Student Management</a>
                    <button className="navbar-toggler" type="button" data-toggle="collapse"
                    <div className="collapse navbar-collapse" id="navbarText">
                        <ul className="navbar-nav mr-auto">⋯
                        <ul className="navbar-nav">⋯
                    </div>
                </div>
            </nav>
        );
    }
}
export default Header;
```

Creating “DefaultLayout” component

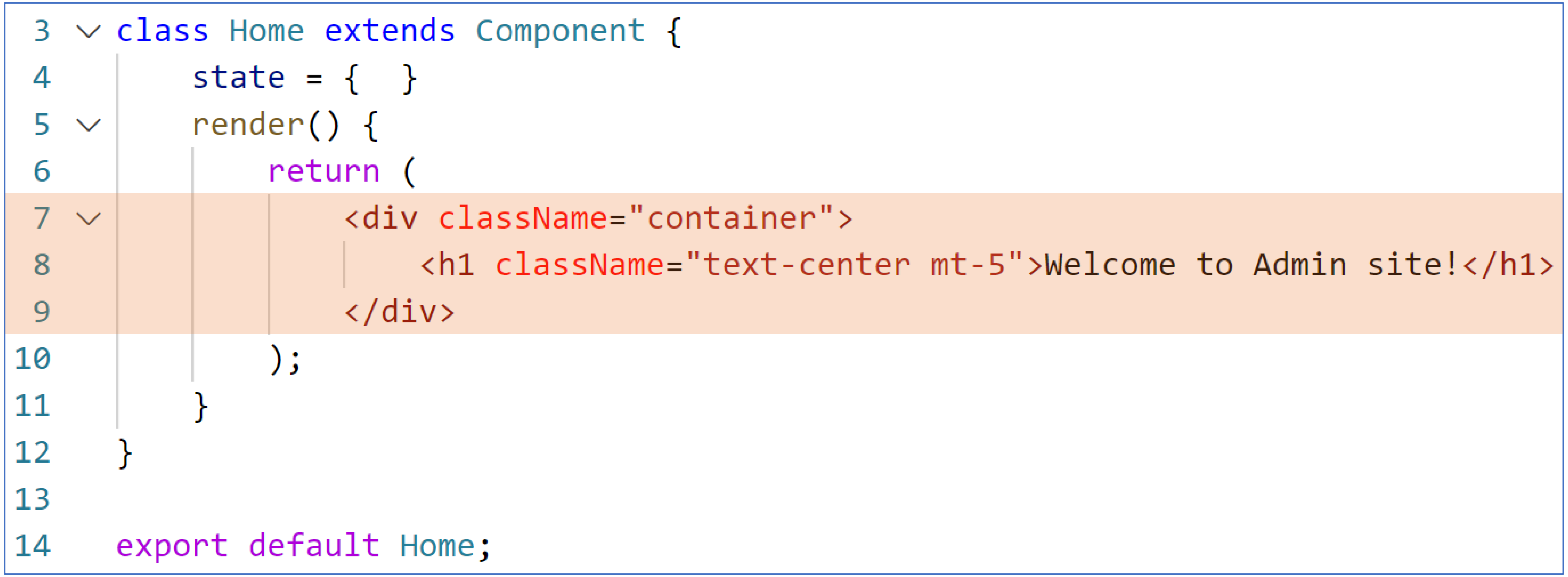
- Create a new file named “defaultLayout.jsx” in “containers” folder
- Create “DefaultLayout” class



```
import React, { Component } from 'react';
import Header from './header';

class DefaultLayout extends Component {
    state = {  }
    render() {
        return (
            <Header />
         );
    }
}

export default DefaultLayout;
```

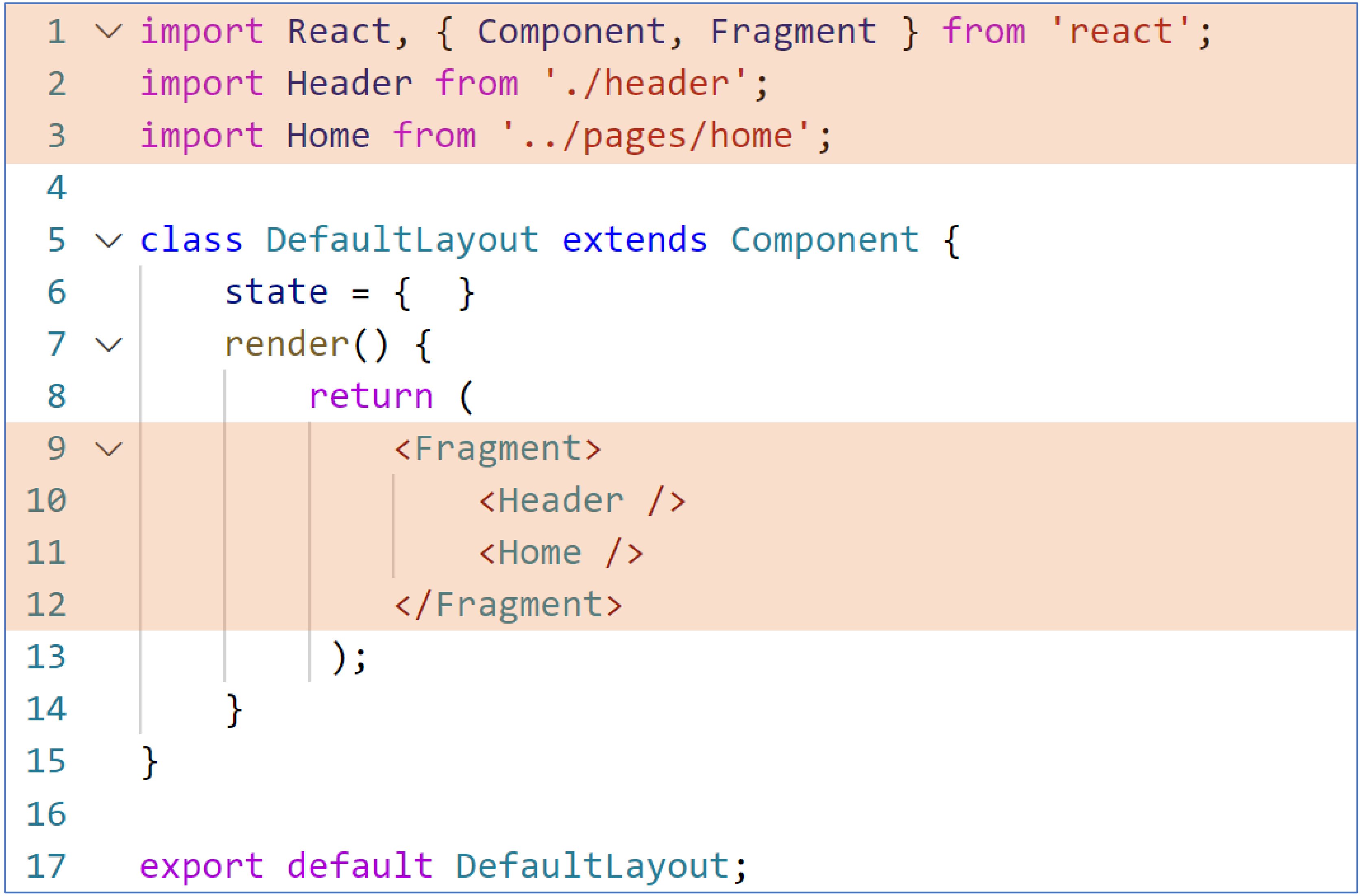
Creating “Home” component

- In “src” folder, Create a new folder named “pages”.
- Create a new file named “home.jsx” in “pages” folder.
- Create “Home” class



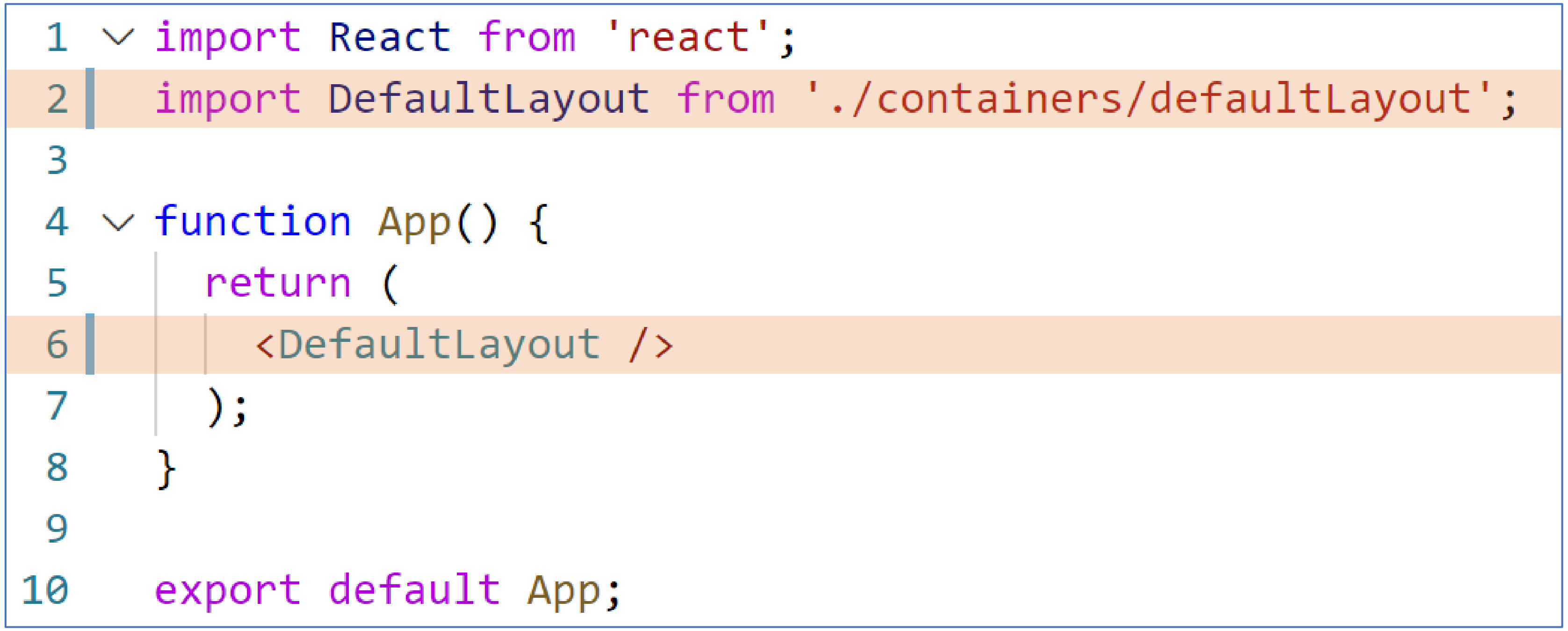
```jsx
class Home extends Component {
    state = {  }
    render() {
        return (
            <div className="container">
                <h1 className="text-center mt-5">Welcome to Admin site!</h1>
            </div>
        );
    }
}

export default Home;
```

Updating “DefaultLayout” component



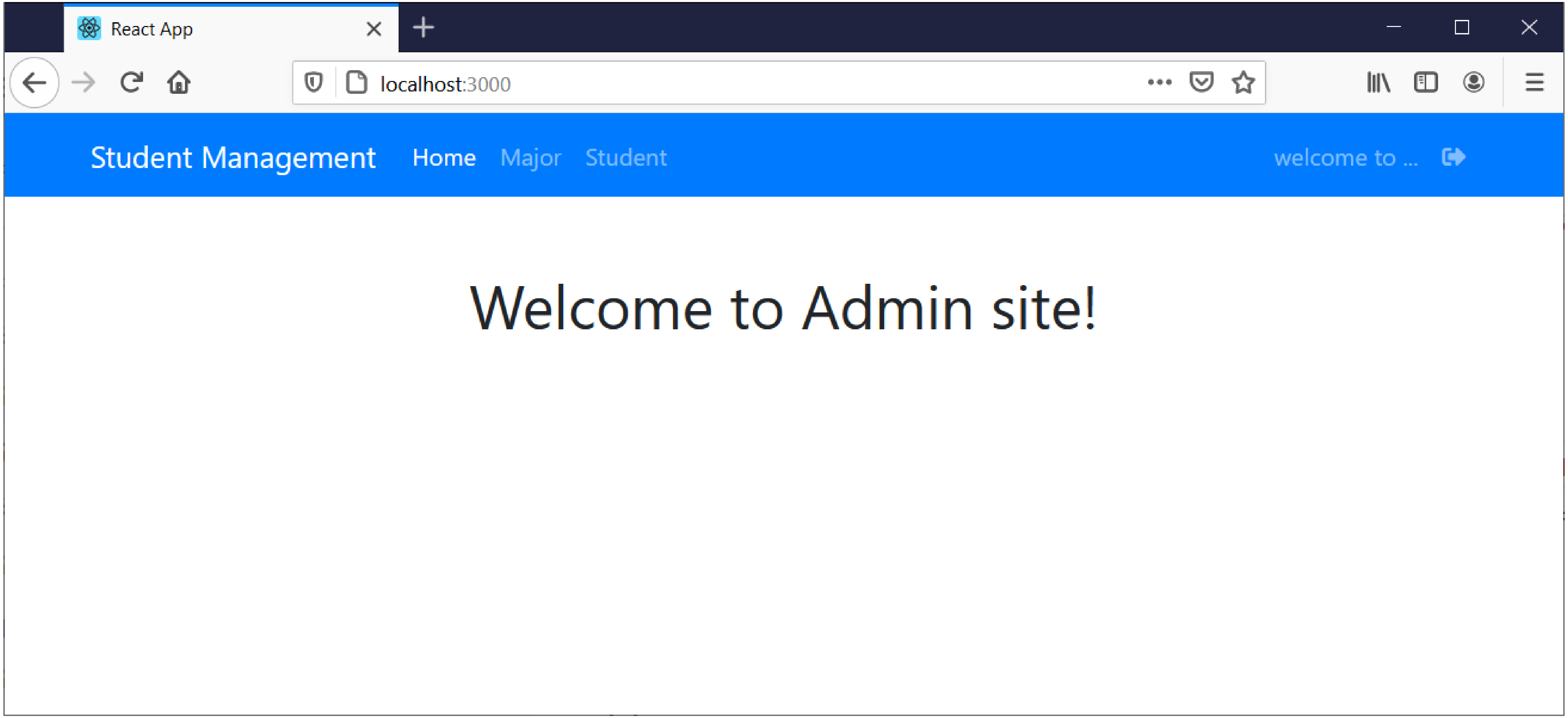
```
import React, { Component, Fragment } from 'react';
import Header from './header';
import Home from '../pages/home';

class DefaultLayout extends Component {
    state = {  }
    render() {
        return (
            <Fragment>
                <Header />
                <Home />
            </Fragment>
        );
    }
}

export default DefaultLayout;
```

Modifying “App.js” file



```
import React from 'react';
import DefaultLayout from './containers/defaultLayout';

function App() {
  return (
    <DefaultLayout />
  );
}

export default App;
```

Testings



Welcome to Admin site!

Creating “Login” component

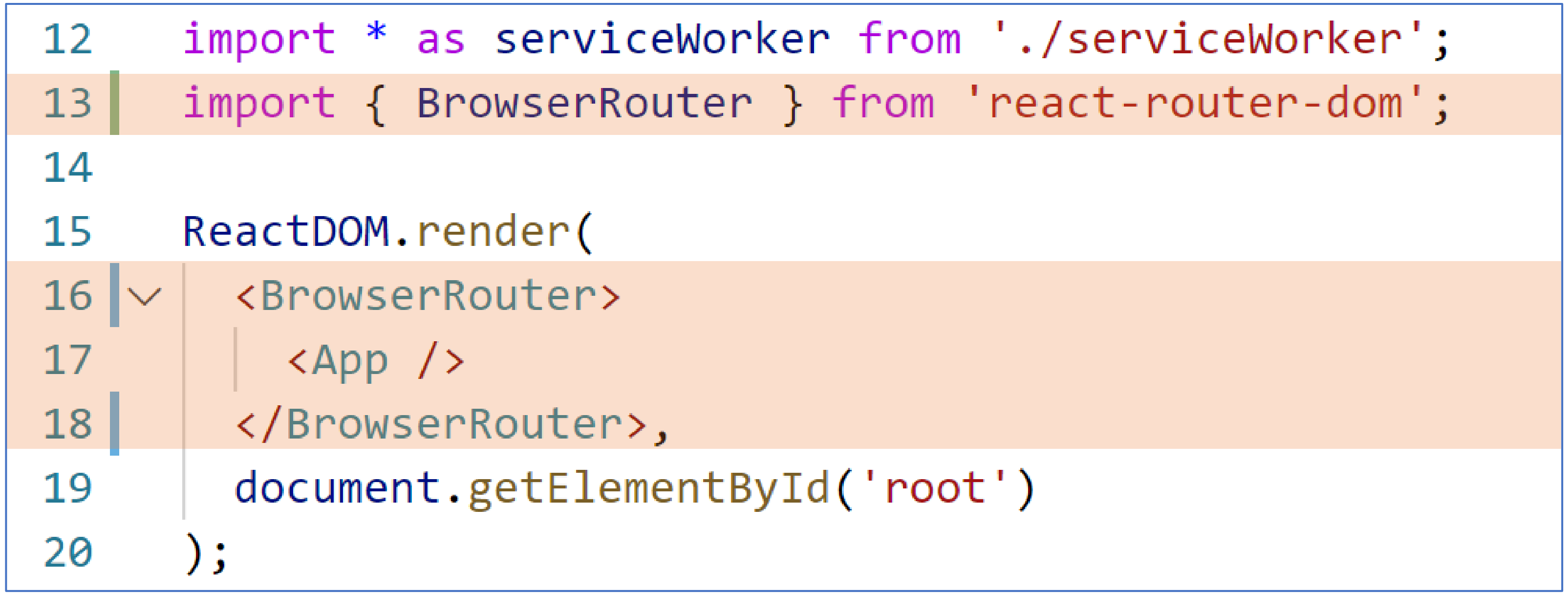
- EXERCISE

Integrating React Routing

- Installing react routing package

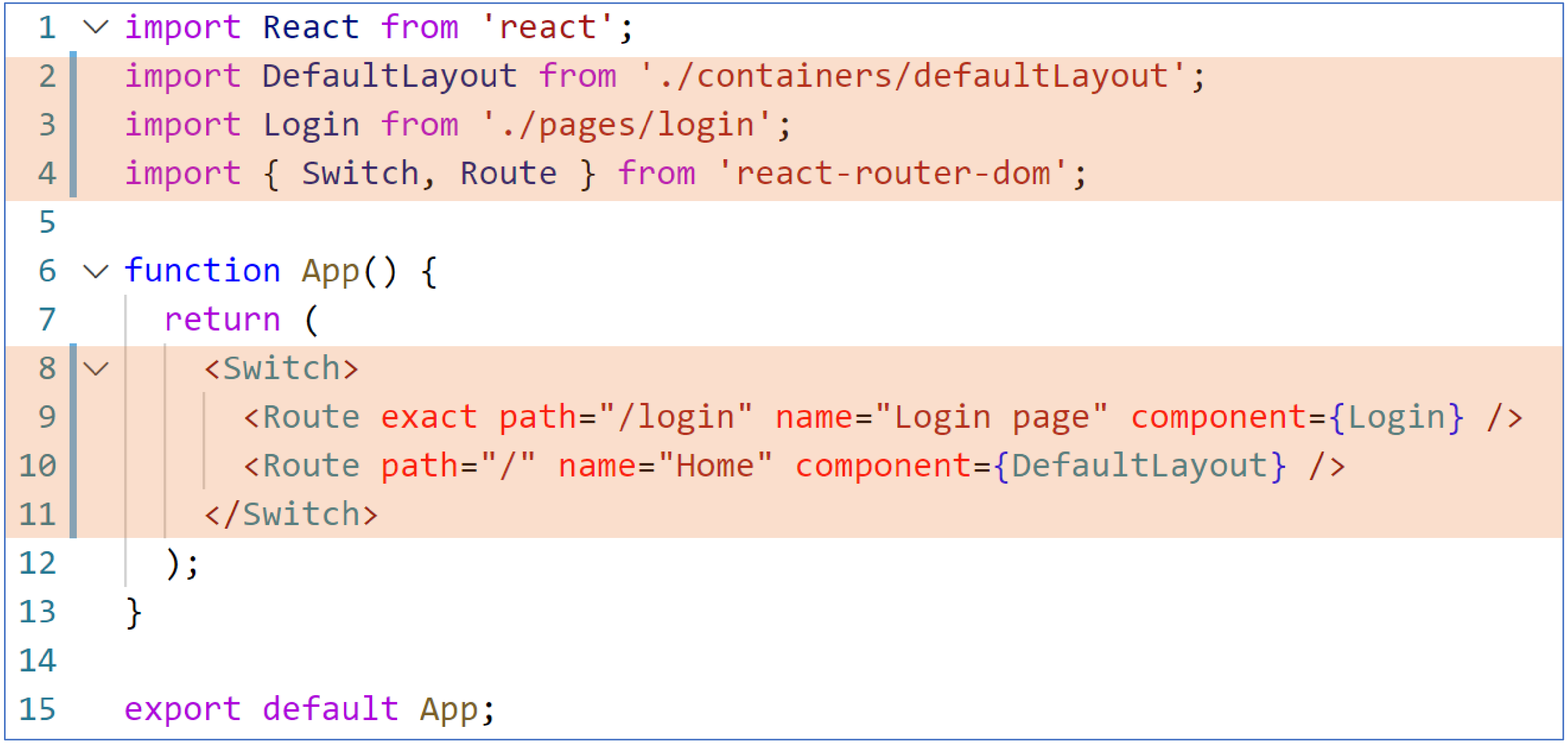
```
npm i react-router-dom
```

- Modifying “index.js” file



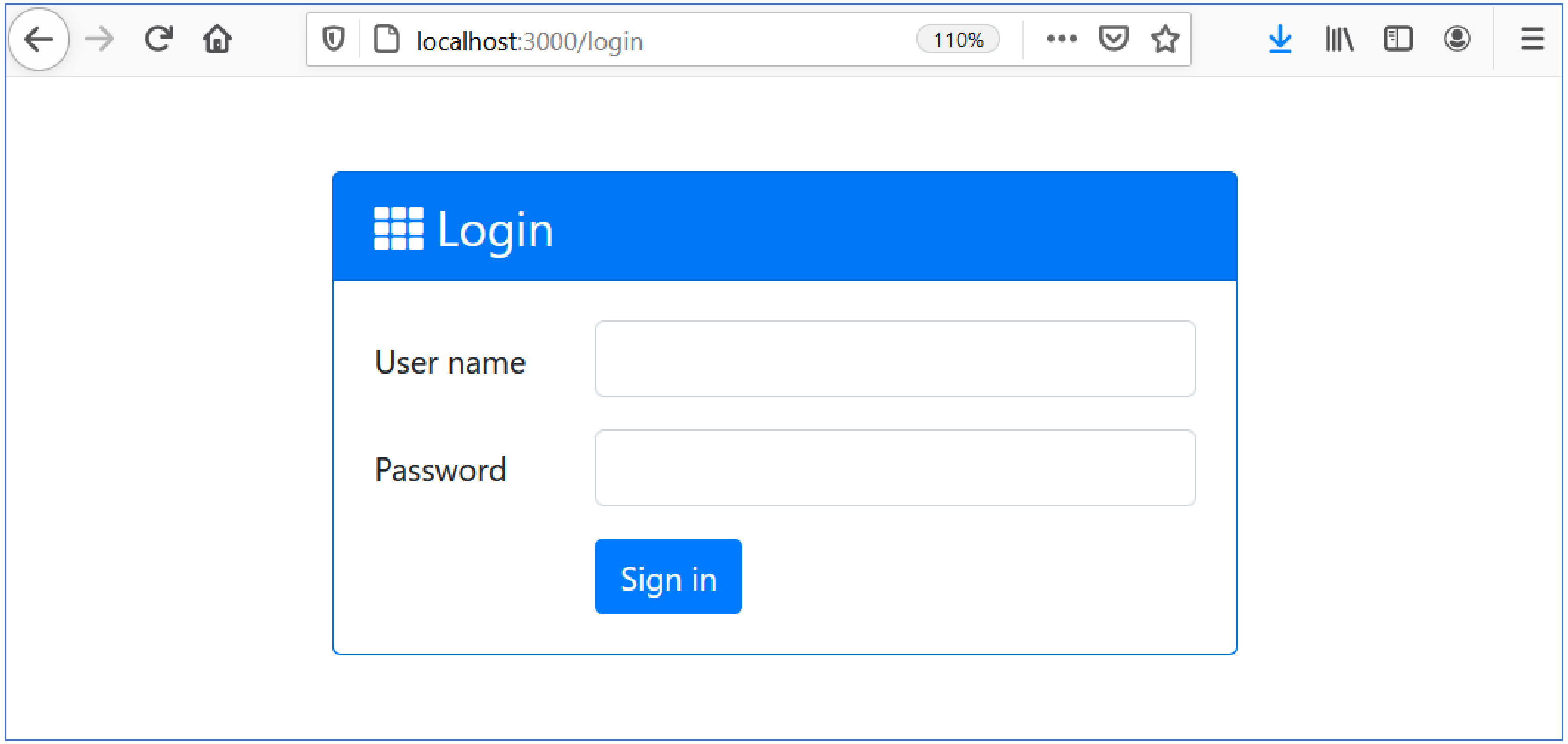
```
import * as serviceWorker from './serviceWorker';
import { BrowserRouter } from 'react-router-dom';

ReactDOM.render(
  <BrowserRouter>
    <App />
  </BrowserRouter>,
  document.getElementById('root')
);
```

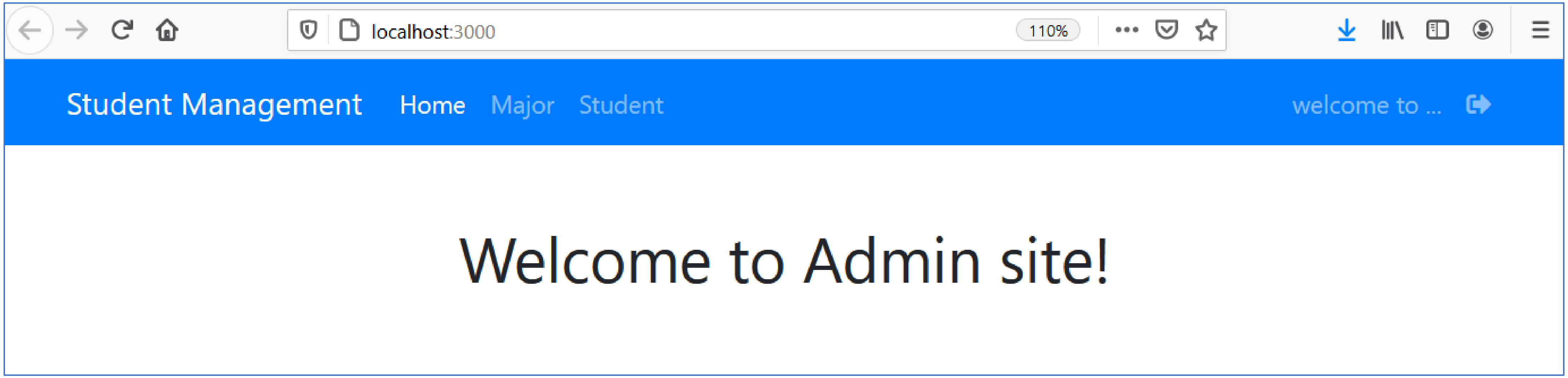
Modifying “App.js” file



```
import React from 'react';
import DefaultLayout from './containers/defaultLayout';
import Login from './pages/login';
import { Switch, Route } from 'react-router-dom';

function App() {
  return (
    <Switch>
      <Route exact path="/login" name="Login page" component={Login} />
      <Route path="/" name="Home" component={DefaultLayout} />
    </Switch>
  );
}

export default App;
```

Test in browser

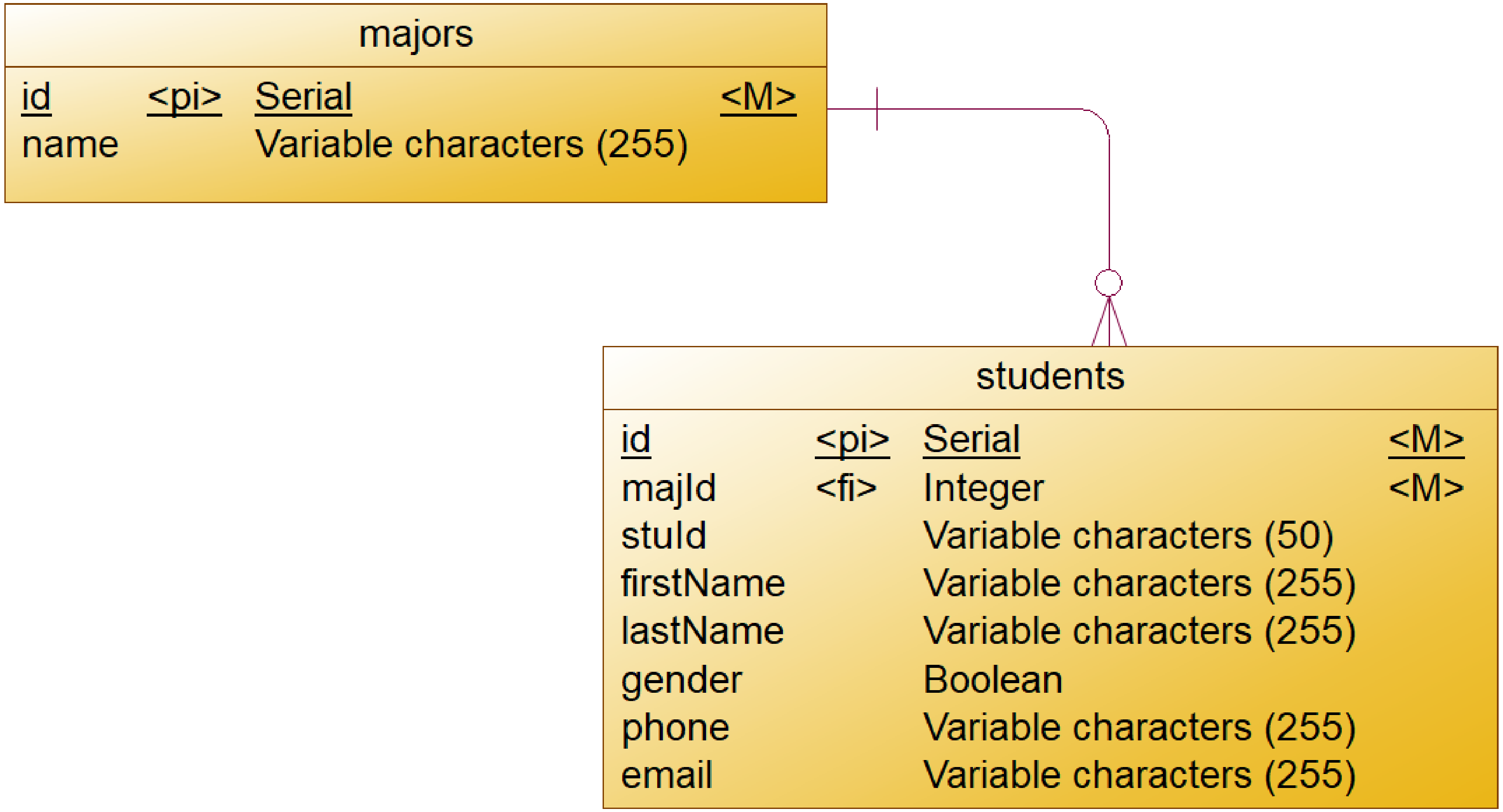




Welcome to Admin site!

Creating “Major” component

- EXERCISE

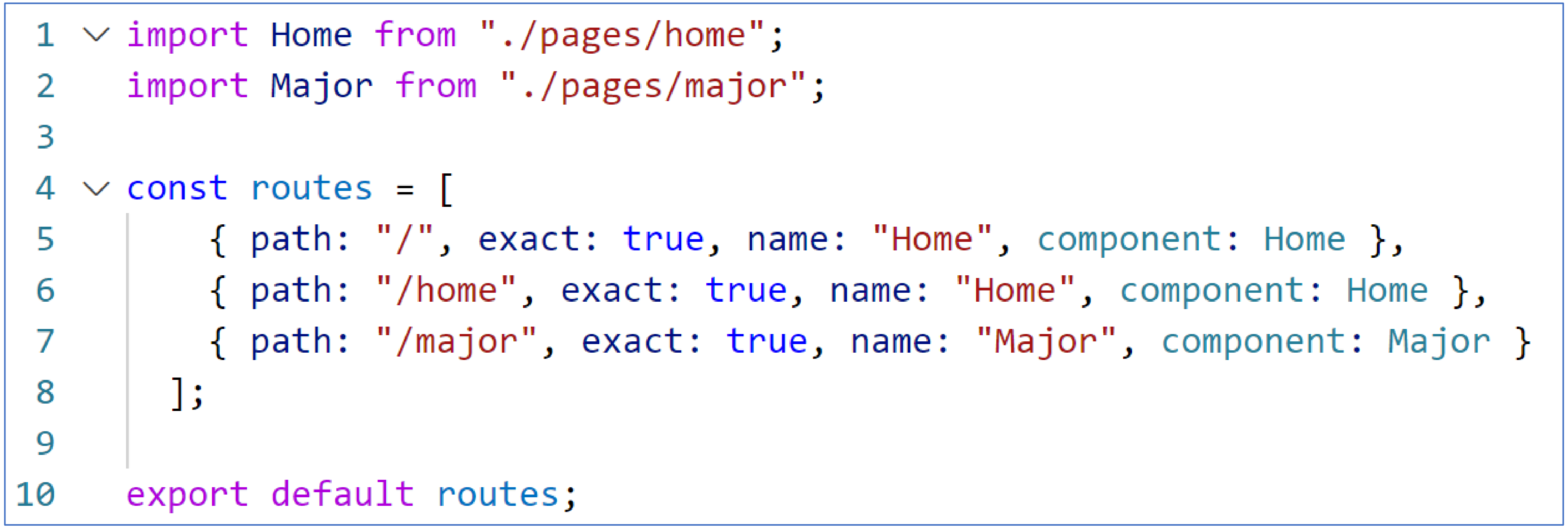


majors			
id	<pi>	Serial	<M>
name		Variable characters (255)	

students			
id	<pi>	Serial	<M>
majId	<fi>	Integer	<M>
stuId		Variable characters (50)	
firstName		Variable characters (255)	
lastName		Variable characters (255)	
gender		Boolean	
phone		Variable characters (255)	
email		Variable characters (255)	

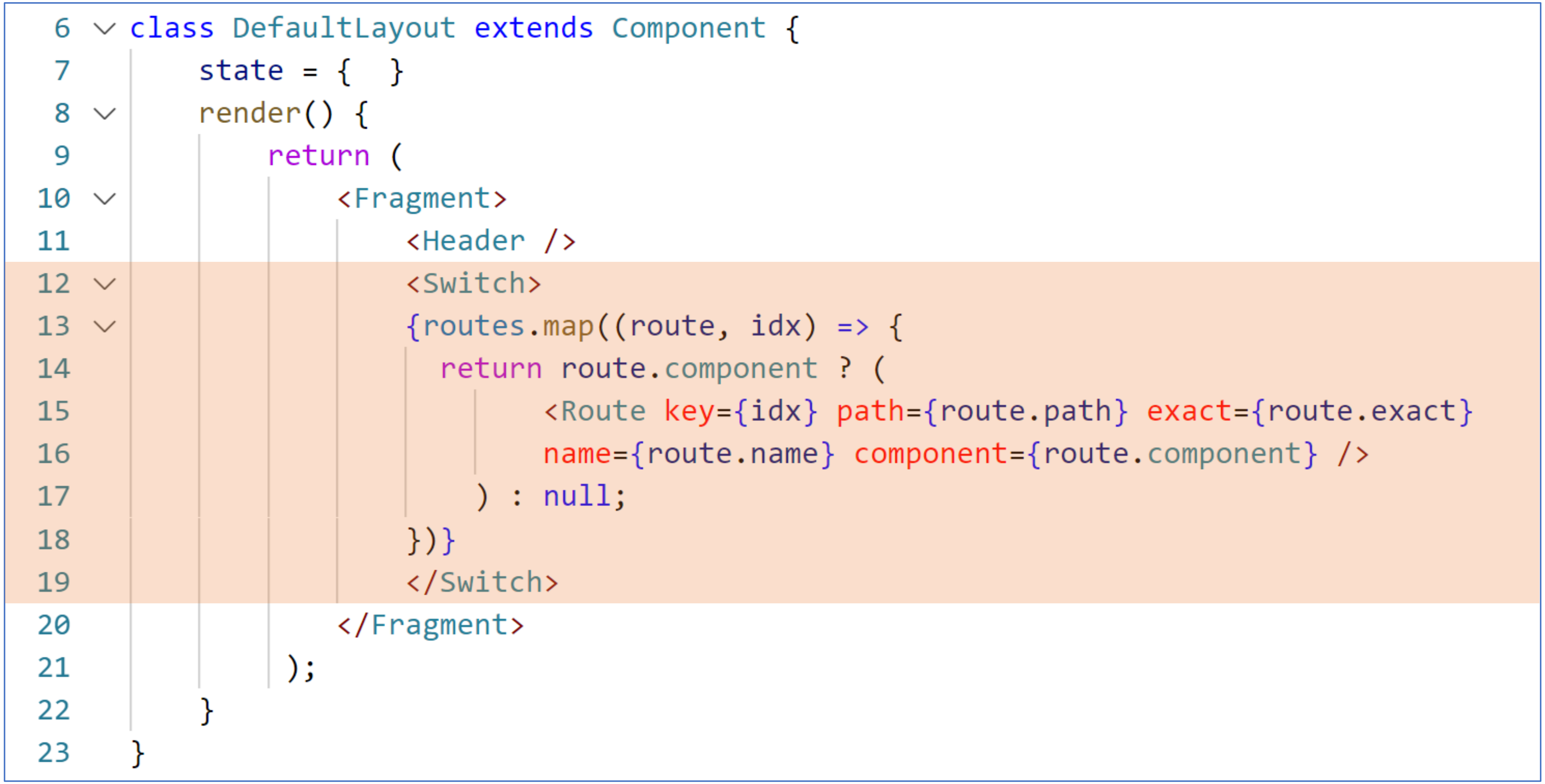
Creating routes

- Create a new file named “routes.js” in “src” folder



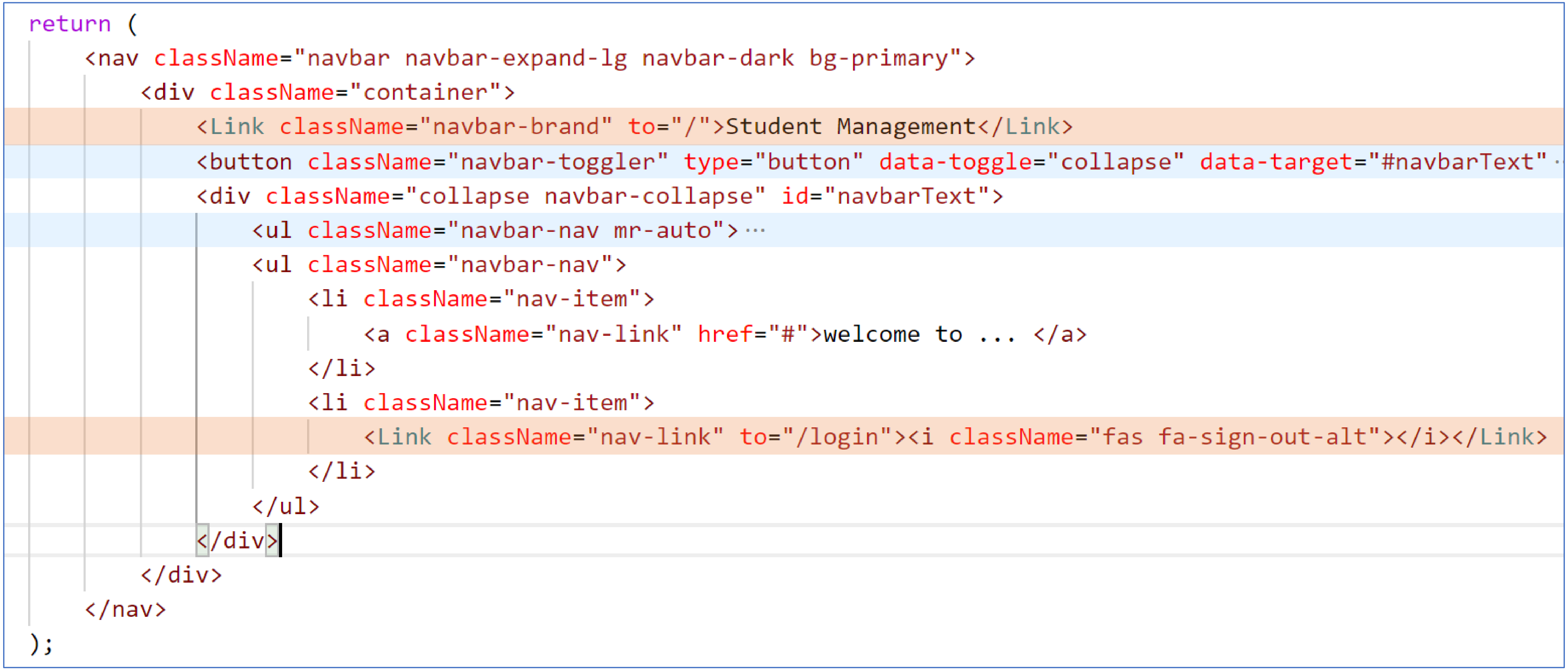
```
import Home from "./pages/home";
import Major from "./pages/major";

const routes = [
    { path: "/", exact: true, name: "Home", component: Home },
    { path: "/home", exact: true, name: "Home", component: Home },
    { path: "/major", exact: true, name: "Major", component: Major }
  ];

export default routes;
```

Modifying “DefaultLayout” component

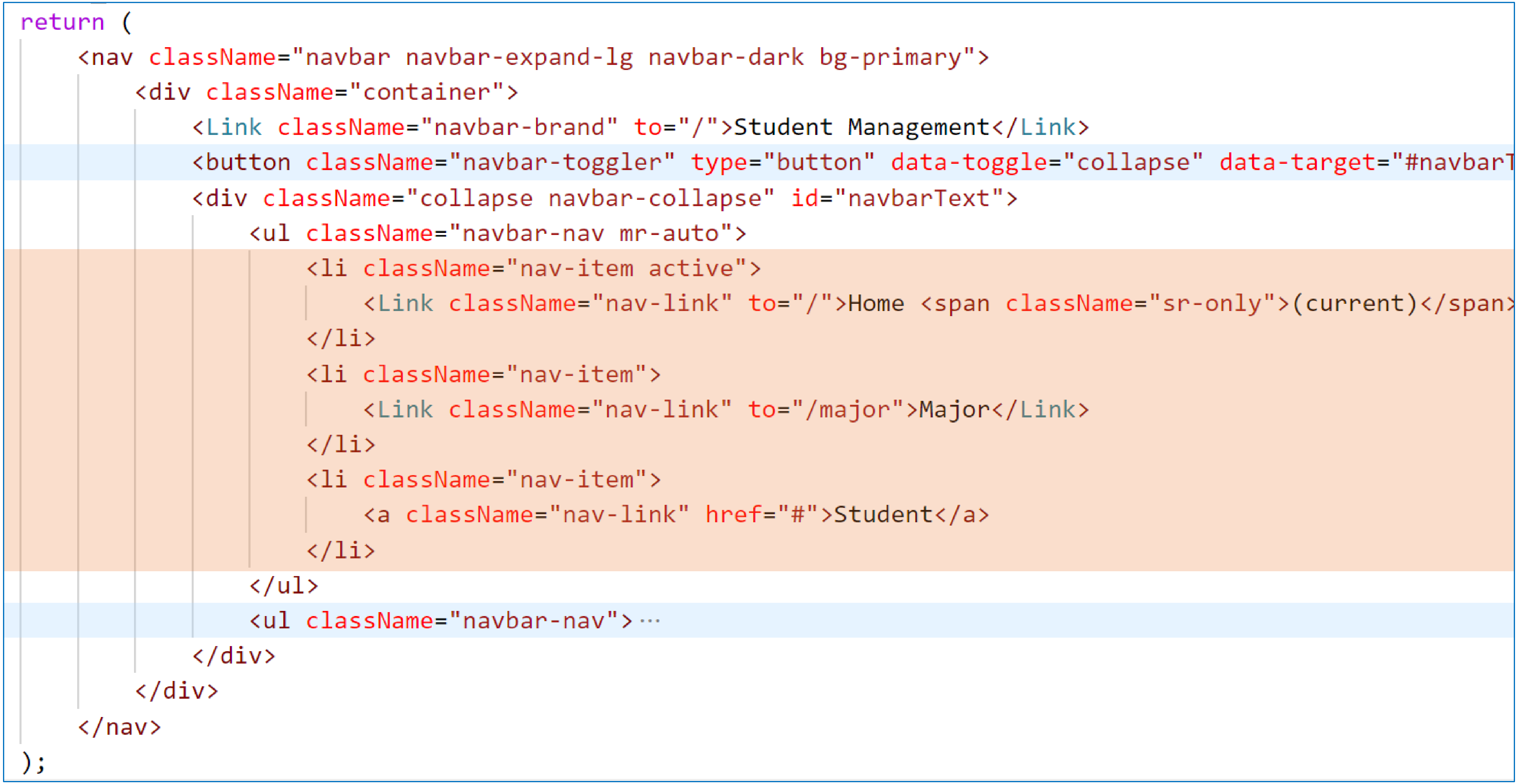


```
class DefaultLayout extends Component {
    state = {  }
    render() {
        return (
            <Fragment>
                <Header />
                <Switch>
                {routes.map((route, idx) => {
                  return route.component ? (
                        <Route key={idx} path={route.path} exact={route.exact}
                        name={route.name} component={route.component} />
                    ) : null;
                })}
                </Switch>
            </Fragment>
        );
    }
}
```

Apply Links with React Route in “Header.js”

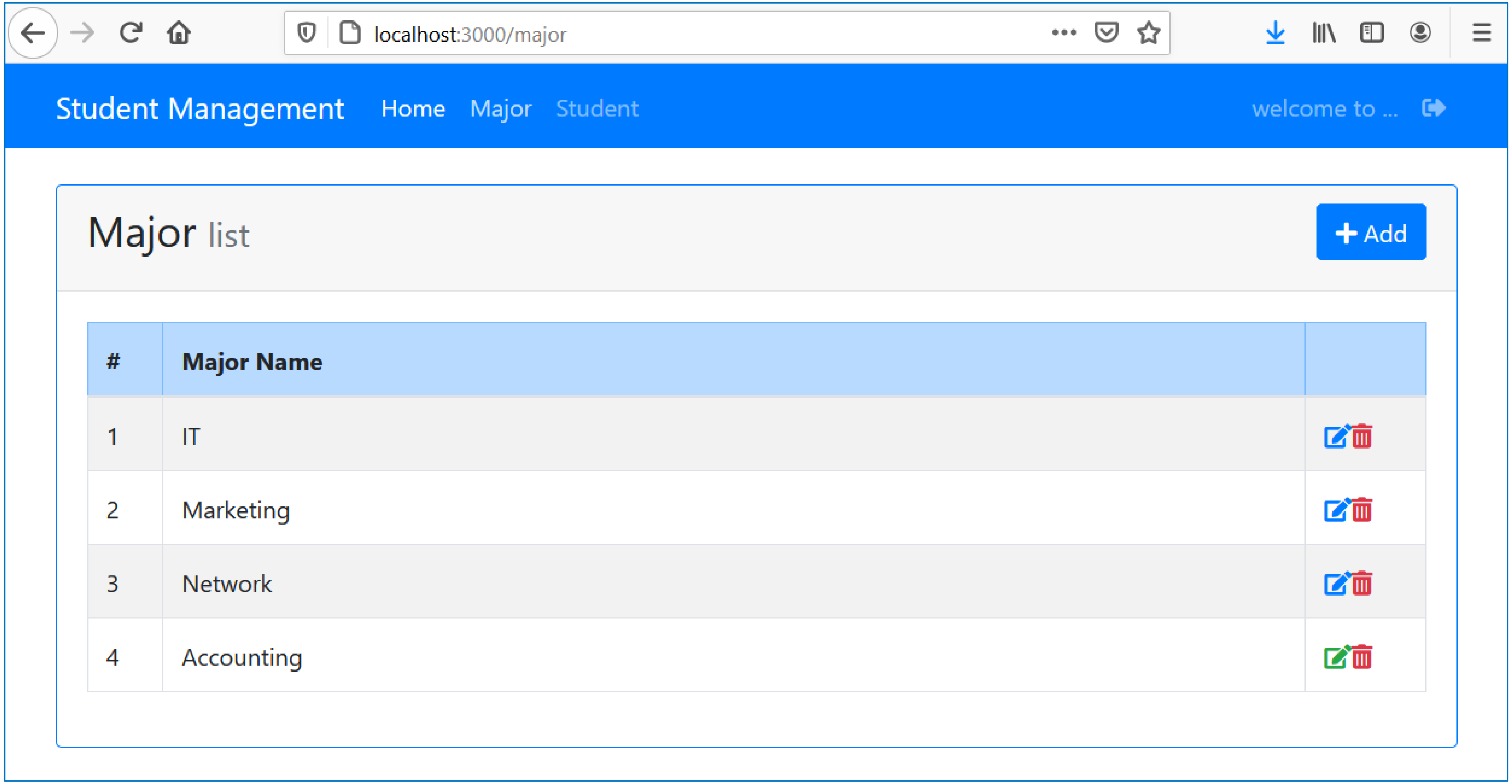


```
return (
    <nav className="navbar navbar-expand-lg navbar-dark bg-primary">
        <div className="container">
            <Link className="navbar-brand" to="/">Student Management</Link>
            <button className="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarText"
            <div className="collapse navbar-collapse" id="navbarText">
                <ul className="navbar-nav mr-auto">⋯
                <ul className="navbar-nav">
                    <li className="nav-item">
                        <a className="nav-link" href="#">welcome to ... </a>
                    </li>
                    <li className="nav-item">
                        <Link className="nav-link" to="/login"><i className="fas fa-sign-out-alt"></i></Link>
                    </li>
                </ul>
            </div>
        </div>
    </nav>
);
```



```
return (
    <nav className="navbar navbar-expand-lg navbar-dark bg-primary">
        <div className="container">
            <Link className="navbar-brand" to="/">Student Management</Link>
            <button className="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarT
            <div className="collapse navbar-collapse" id="navbarText">
                <ul className="navbar-nav mr-auto">
                    <li className="nav-item active">
                        <Link className="nav-link" to="/">Home <span className="sr-only">(current)</span>
                    </li>
                    <li className="nav-item">
                        <Link className="nav-link" to="/major">Major</Link>
                    </li>
                    <li className="nav-item">
                        <a className="nav-link" href="#">Student</a>
                    </li>
                </ul>
                <ul className="navbar-nav">⋯
            </div>
        </div>
    </nav>
);
```

Test in browser

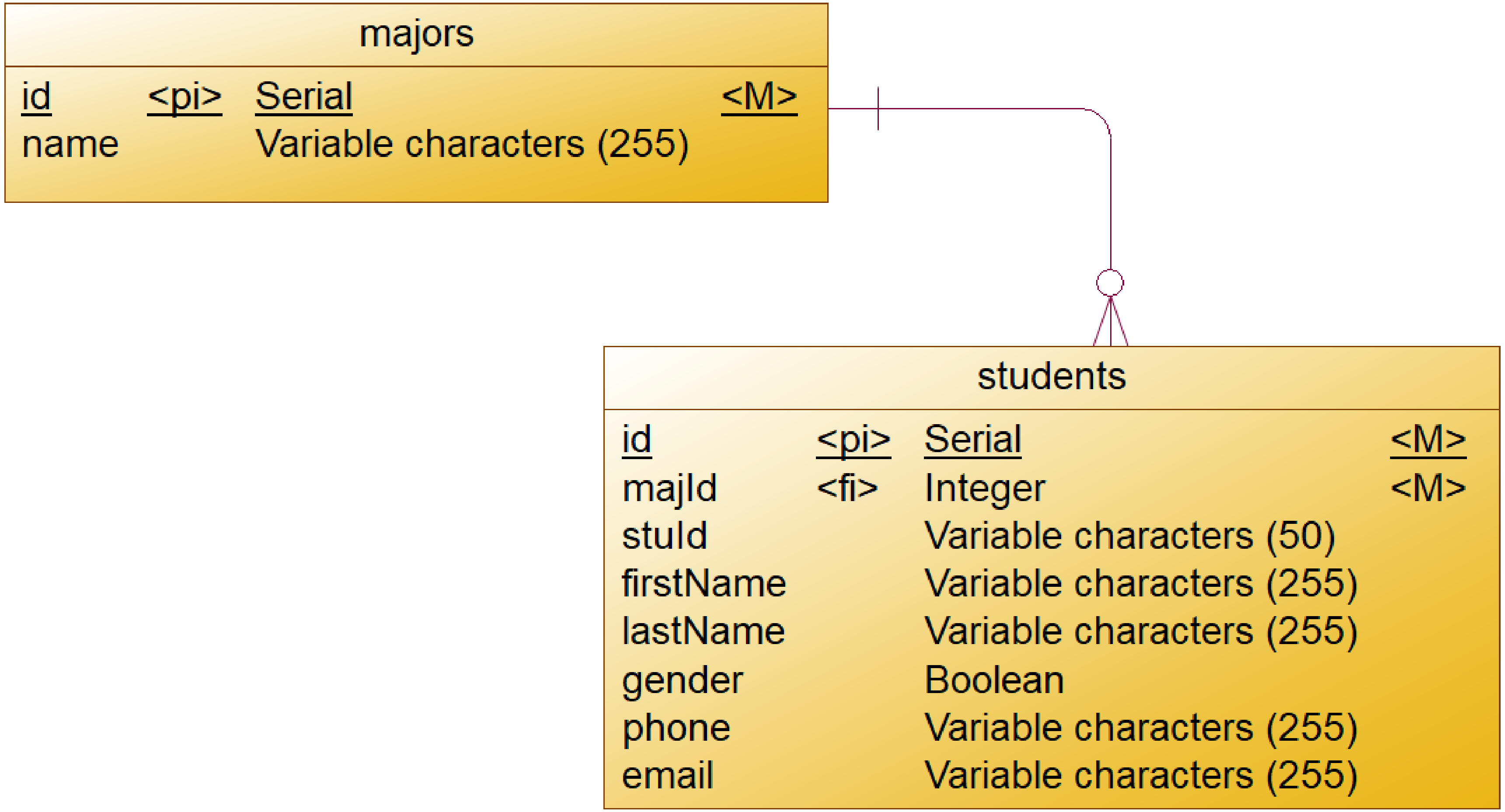


Major list

#	Major Name	
1	IT	
2	Marketing	
3	Network	
4	Accounting	

Creating “Student” component & route

- EXERCISE



majors

id	<pi>	Serial	<M>
name		Variable characters (255)	

students

id	<pi>	Serial	<M>
majId	<fi>	Integer	<M>
stuId		Variable characters (50)	
firstName		Variable characters (255)	
lastName		Variable characters (255)	
gender		Boolean	
phone		Variable characters (255)	
email		Variable characters (255)	

Extra

Applying Bootstrap component in React

- React Bootstrap

  https://react-bootstrap.github.io/

- Reactstrap

  https://reactstrap.github.io/