Full Stack IV– Lab 5

- React Router

Developer Note:

- Create a new **create-react-app** application for this lab.

References:

https://www.npmjs.com/package/react-router

Exercise 1 – Basic Routes

1. Create a new React application using **create-react-app**

2. Install ***React Router*** using ***npm install*** command.

```
npm install --save react-router-dom
```

3. Navigate to the ***App.js*** file and remove the default JSX in the App component render method.

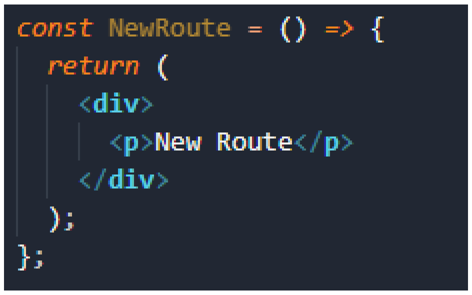
```
class App extends Component {
  render() {
    return (

    );
  }
}
```

4. In the ***App.js***, add an import ***BrowserRouter*** and ***Route*** from ***react-router-dom***

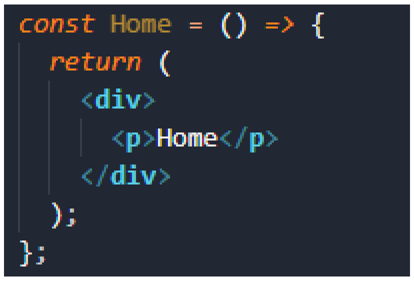
```
import { BrowserRouter, Route } from "react-router-dom";
```

5. In the ***App.js***, above the App component add the following function component.



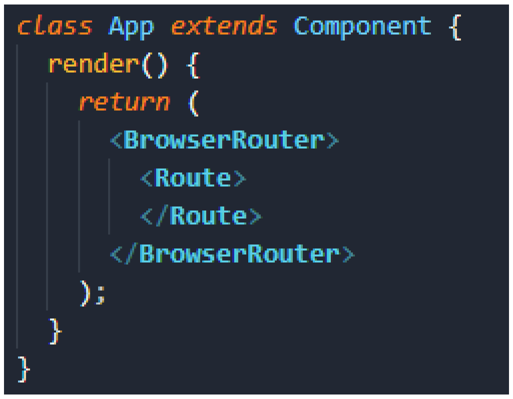
```
const NewRoute = () => {
  return (
    <div>
      <p>New Route</p>
    </div>
  );
};
```

6. Create a home component in the same ***App.js***



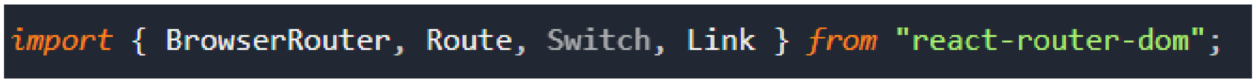
```
const Home = () => {
  return (
    <div>
      <p>Home</p>
    </div>
  );
};
```

7. In the ***App.js*** component start setting up the Routes by adding the ***BrowserRouter*** and ***Route*** to the render method.



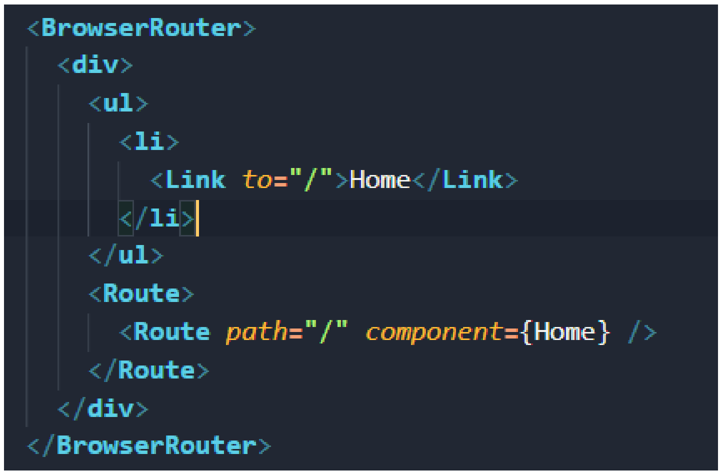
```
class App extends Component {
  render() {
    return (
      <BrowserRouter>
        <Route>
        </Route>
      </BrowserRouter>
    );
  }
}
```

8. To setup our routes we need to add Link and ***Switch*** to the import statement from react-router-dom



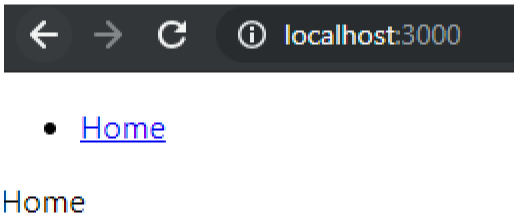
```
import { BrowserRouter, Route, Switch, Link } from "react-router-dom";
```

9. Add the first link and default path to load the ***Home*** component.



```
<BrowserRouter>
  <div>
    <ul>
      <li>
        <Link to="/">Home</Link>
      </li>
    </ul>
    <Route>
      <Route path="/" component={Home} />
    </Route>
  </div>
</BrowserRouter>
```

The browser should output as follows

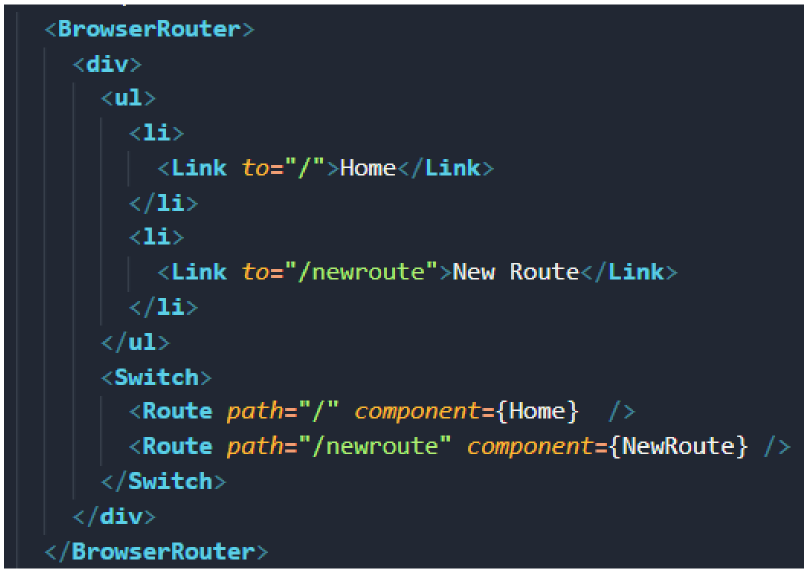


localhost:3000

- Home

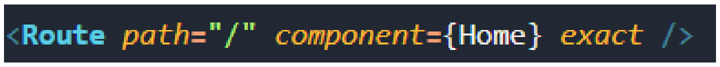
Home

10. We need to add more Routes and Link to the Browser router. Use the ***Switch*** statement in this way to allow for multiple route paths. Test out the new routing links in the browser.

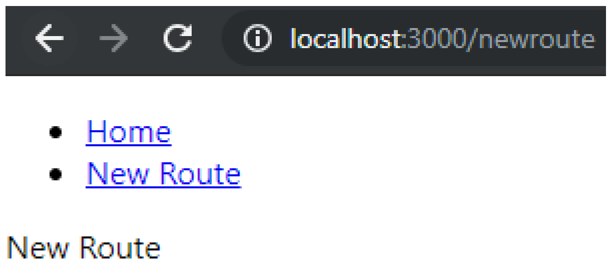


```
<BrowserRouter>
  <div>
    <ul>
      <li>
        <Link to="/">Home</Link>
      </li>
      <li>
        <Link to="/newroute">New Route</Link>
      </li>
    </ul>
    <Switch>
      <Route path="/" component={Home}  />
      <Route path="/newroute" component={NewRoute} />
    </Switch>
  </div>
</BrowserRouter>
```

11. Testing the application the New Route will not working, since the default route “/” is being matched first when “/newroute” is requested. To solve this add the keyword exact to the default Home route.



```
<Route path="/" component={Home} exact />
```


localhost:3000/newroute

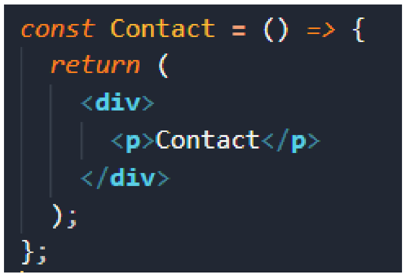
- Home
- New Route

New Route

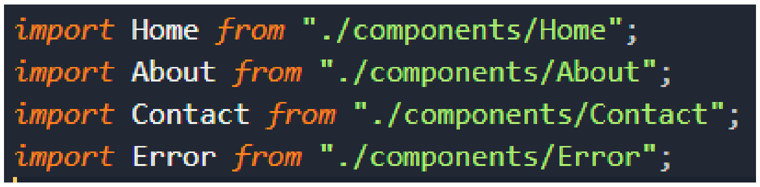
Exercise 2 – Multiple Routes

1. Create a component folder and then three new functional components: About, Contact, Error. Move the code for Home component in a file and place in the components folder.

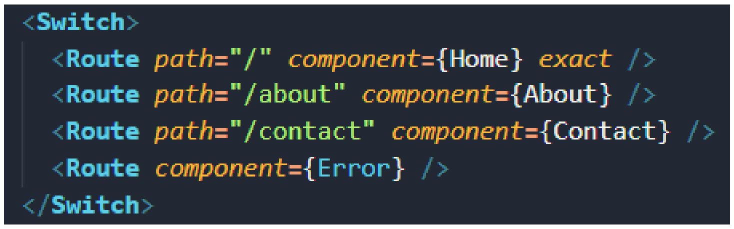
2. In each of the component files add similar code to the following. In render the name of the component in the JSX will be displayed


```
const Contact = () => {
  return (
    <div>
      <p>Contact</p>
    </div>
  );
};
```

3. Import all of the components into the ***App.js*** file.

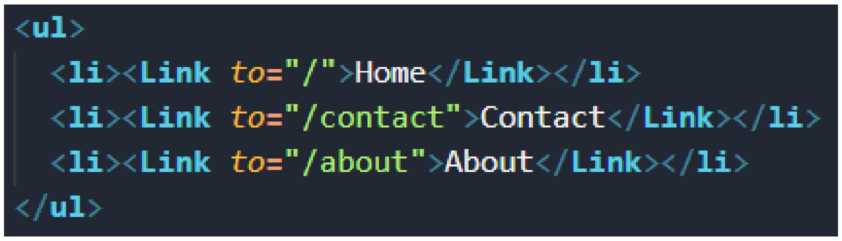

```
import Home from "./components/Home";
import About from "./components/About";
import Contact from "./components/Contact";
import Error from "./components/Error";
```

4. Add the new routes to the ***BrowserRouter*** as follows:

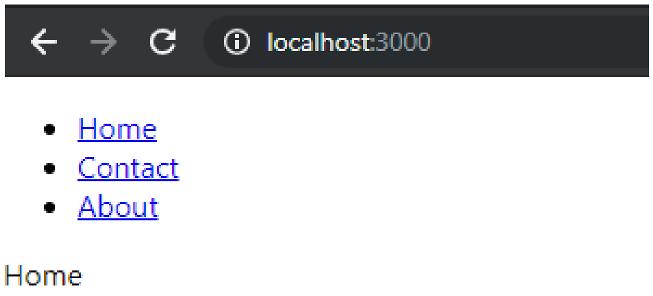


```
<Switch>
  <Route path="/" component={Home} exact />
  <Route path="/about" component={About} />
  <Route path="/contact" component={Contact} />
  <Route component={Error} />
</Switch>
```

5. Add the new navigation links to the ***JSX*** unordered list to trigger the routes.



```
<ul>
  <li><Link to="/">Home</Link></li>
  <li><Link to="/contact">Contact</Link></li>
  <li><Link to="/about">About</Link></li>
</ul>
```



localhost:3000

- Home
- Contact
- About

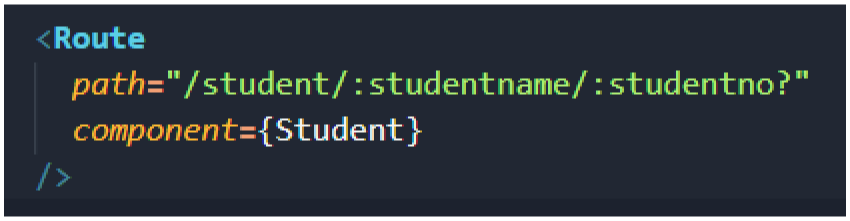
Home

6. Create a new ***Navigation*** component and move all the navigation links into the file. Import it into the ***App.js*** and include the component in the render in place of the <ul></ul> links.

Exercise 3 – Router Parmeters

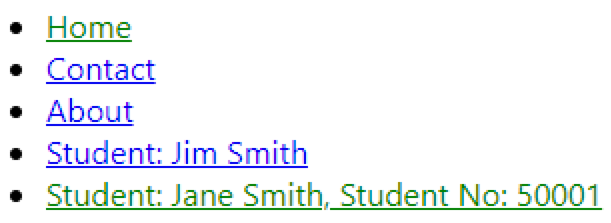
1. Create a new component named ***Student*** and a new Link in the ***Navigation*** component.

2. Add a colon for a route parameter for studentname, followed by another optional route parameter for studentno



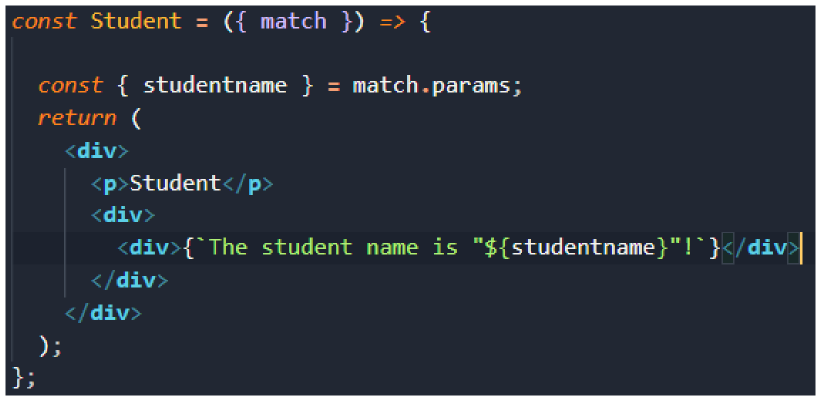
```
<Route
  path="/student/:studentname/:studentno?"
  component={Student}
/>
```

3. Update the navigation links to display and pass the following route parameters.



- Home
- Contact
- About
- Student: Jim Smith
- Student: Jane Smith, Student No: 50001

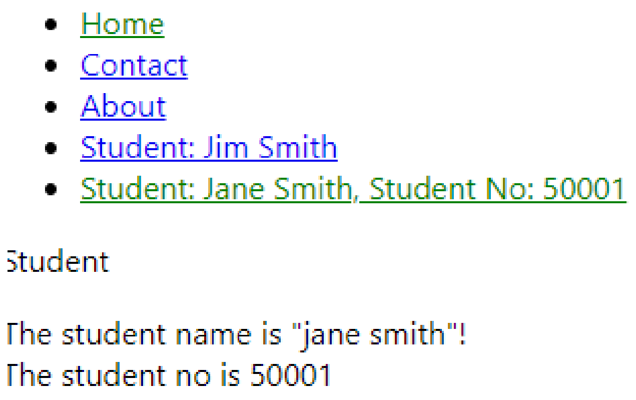
4. Add the following code in the ***Student*** component to output the ***mandatory* route parameter** for ***Student name***.



```
const Student = ({ match }) => {

  const { studentname } = match.params;
  return (
    <div>
      <p>Student</p>
      <div>
        <div>{`The student name is "${studentname}"!`}</div>
      </div>
    </div>
  );
};
```

5. Update the ***Student*** component to display the ***optional* route parameter** for ***Student no.*** *The output when navigating to this route should be as follows.*



- Home
- Contact
- About
- Student: Jim Smith
- Student: Jane Smith, Student No: 50001

```
Student

The student name is "jane smith"!
The student no is 50001
```

Exercise 4 – Redirecting with History API

1. We need to create a ***History*** module and export it, so that we can use the History API in the ***BrowserRouter***. To do this, we need to create a ***History.js*** file with the following code.

```
import createBrowserHistory from "history/createBrowserHistory";

const customHistory = createBrowserHistory();
export default customHistory;
```

2. Next, import the history module in the ***App.js*** and include the history object in the ***BrowserRouter*** to make it available to the entire application

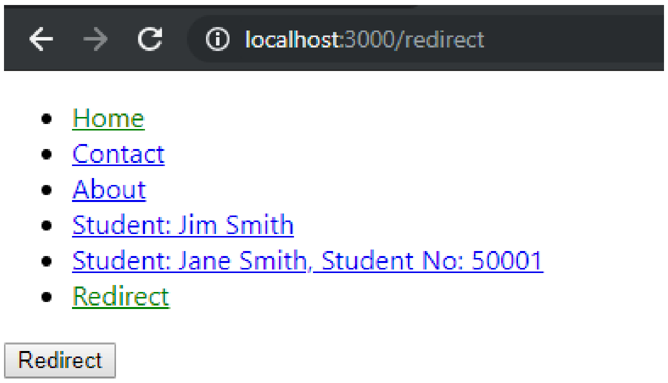
```
<BrowserRouter history={history}>
```

3. Create a new navigation link, route and functional component named ***Redirect***.

4. The ***history object*** will be available in the component props parameter. Add the following event handler in the ***Redirect*** component.

```
const handleRedirectClick = () => {
  const { history } = props;
  if (history) history.push("/");
  else console.log(`history not found in props`);
};
```

5. Add a button with a click handler to call the ***handleRedirectClick*** method and redirect the route to the home page.



- Home
- Contact
- About
- Student: Jim Smith
- Student: Jane Smith, Student No: 50001
- Redirect