Routing

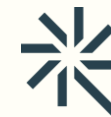# Efficient Navigation in Single Page Applications

Qinshift
Academy

Introduction to React Router. What is React Router?

- Library for routing in React applications
- Enables Single Page Applications (SPAs) to navigate without refreshing the browser.

Setting Up React Router

Install React Router using npm

npm install react-router-dom

```
1   import ReactDOM from 'react-dom';
2   import { BrowserRouter } from 'react-router-dom';
3   import App from './App';
4
5   ReactDOM.render(
6     <BrowserRouter>
7       <App />
8     </BrowserRouter>,
9     document.getElementById('root')
10  );
11
```

Basic Concepts

- Router Components: BrowserRouter, HashRouter
- Route: Associates URL paths with components
- Link: Navigation links that change the URL

Basic Route Configuration

- Router Components: BrowserRouter, HashRouter
- Route: Associates URL paths with components
- Link: Navigation links that change the URL

```
1   // Example of setting up routes in App component
2   import { Route, Switch } from 'react-router-dom';
3
4   function App() {
5     return (
6       <Switch>
7         <Route exact path="/" component={Home} />
8         <Route path="/about" component={About} />
9         <Route path="/contact" component={Contact} />
10      </Switch>
11    );
12  }
```

Dynamic Routing

- Dynamic Parameters

```
1  function User({ match }) {
2    return <div>User ID: {match.params.id}</div>;
3  }
4
5  // Route setup
6  <Route path='/user/:id' component={User} />;
7
```

Nested Routes

```
1   // Parent component
2   function Dashboard() {
3     return (
4       <div>
5         <h2>Dashboard</h2>
6         <Switch>
7           <Route path='/dashboard/stats' component={Stats} />
8           <Route path='/dashboard/settings' component={Settings} />
9         </Switch>
10      </div>
11    );
12  }
13
14  // Route setup in App component
15  <Route path='/dashboard' component={Dashboard} />;
16
```

Route Guards

- Protecting Routes
- Use Redirect component for guarding

```
1   import { Redirect, Route } from 'react-router-dom';
2
3   function PrivateRoute({ component: Component, ...rest }) {
4     return (
5       <Route
6         {...rest}
7       render={props =>
8           isAuthenticated() ? <Component {...props} /> : <Redirect to='/login' />
9         }
10      />
11    );
12  }
13  // Usage
14  <PrivateRoute path='/admin' component={AdminPanel} />;
15
```

The shift begins with you

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