

## Basic React Router Interview Questions & Answers

### 1. What is `react-router-dom` and why do we use it?

`react-router-dom` is a **library** for handling **routing** in React applications. It allows you to create **single-page applications (SPA)** with multiple views without reloading the page. This provides a smooth user experience similar to multi-page apps but without full-page refreshes.

### 2. How is client-side routing different from traditional server-side routing?

- **Client-side routing** (React Router) updates only parts of the UI without reloading the page. Navigation happens instantly.
- **Server-side routing** (traditional websites) makes a request to the server every time a user navigates, causing full-page reloads.

### 3. What is `<BrowserRouter>` and why do we wrap our main component inside it?

`<BrowserRouter>` is the **main component** that enables routing in a React app. It **keeps track of the URL changes** and renders the correct component.

We wrap our main component inside it to allow all child components to use routing features.

Example:

```
import { BrowserRouter } from "react-router-dom";
import App from "./App";
```

```
const Root = () => (
  <BrowserRouter>
    <App />
  </BrowserRouter>
);
```

```
export default Root;
```

### So, What Does `<BrowserRouter>` Do?

- ☒ Listens to URL changes in the browser.
- ☒ Maps URLs to Components without full page reload.
- ☒ Enables navigation using `<Link>` or `<Route>`.

### 4. What are `<Routes>` and `<Route>` in React Router?

- `<Routes>` acts as a container for defining different `<Route>` components.
- `<Route>` maps a **path** to a **component** that should be rendered.

Example:

```
import { Routes, Route } from "react-router-dom";
import Home from "../Home";
import About from "../About";
```

```
function App() {
  return (
    <Routes>
      <Route path="/" element={<Home />} />
      <Route path="/about" element={<About />} />
    </Routes>
  );
}
```

```
);  
}
```

```
export default App;
```

Here, when the URL is `/`, the `Home` component is displayed. When it's `/about`, the `About` component is shown.

## 5. How do you navigate between pages without reloading using `react-router-dom`?

Instead of `<a>` tags (which cause full-page reloads), we use `<Link>` from `react-router-dom`.

Example:

```
import { Link } from "react-router-dom";  
  
function NavBar() {  
  return (  
    <nav>  
      <Link to="/">Home</Link>  
      <Link to="/about">About</Link>  
    </nav>  
  );  
}
```

Clicking a `<Link>` updates the URL **without refreshing the page**.

## 6. What is the difference between `<Link>` and `<a>` tag in React Router?

- `<a>` tag reloads the entire page when clicked.
- `<Link>` updates the URL and changes the component **without reloading** the page.

Example:

```
<Link to="/about">Go to About</Link> // No page refresh  
<a href="/about">Go to About</a> // Full page reload
```

For **better performance**, always use `<Link>` in React apps.