**What is a React Router?**

**React Router** is a standard library for routing in [React](https://www.geeksforgeeks.org/react-tutorial/). It enables the navigation among views of various components in a React Application, allows changing the browser URL, and keeps the UI in sync with the URL.

**Features of React Router**

* **Declarative Routing:** React Router v6 uses the Routes and Route components to define routes declaratively, making the routing configuration simple and easy to read.
* **Nested Routes:** It supports nested routes, allowing for complex and hierarchical routing structures, which helps in organizing the application better.
* **Programmatic Navigation:** The useNavigate hook enables programmatic navigation, allowing developers to navigate between routes based on certain conditions or user actions.
* **Route Parameters:** It provides dynamic routing with route parameters, enabling the creation of routes that can match multiple URL patterns.
* **Improved TypeScript Support:** Enhanced TypeScript support ensures that developers can build type-safe applications, improving development efficiency and reducing errors.

**Steps to Use React Router**

**Step 1:**Create React application using the following command.

npx create-react-app react-router-example  
cd react-router-example

npm create vite@latest

**Step 2:**Install react-router in your application write the following command in your terminal

npm install react-router-dom@6

**Folder Structure**

To create an application with multiple page routes, let's first start with the file structure.

Within the src folder, we'll create a folder named pages with several files:

src\pages\:

* Layout.js
* Home.js
* Blogs.js
* Contact.js
* NoPage.js

Each file will contain a very basic React component.

* **import {Link, NavLink} from 'react-router-dom'**

**Link**

we use Link in place of a tag, when we use a tag then our page is completely refresh or in react we don’t have a concept of refreshing.

anchor tag or <a> tag is not used in React as it refreshes the whole page which is not the concept of react, that's why Link tag is used in react which is imported from react-router-dom.

**<Link to="/" >** -> instead of ‘href’ we use ‘to’ in Link

**NavLink** -> provide some additional things

**Client side routing**

React Router enables "client-side routing".

In traditional websites, the browser requests a document from a web server, downloads and evaluates CSS and JavaScript assets, and renders the HTML sent from the server. When the user clicks a link, it starts the process all over again for a new page.

Client-side routing allows your app to update the URL from a link click without making another request for another document from the server. Instead, your app can immediately render some new UI and make data requests with fetch to update the page with new information.

This enables faster user experiences because the browser doesn't need to request an entirely new document or re-evaluate CSS and JavaScript assets for the next page. It also enables more dynamic user experiences with things like animation.

Client-side routing is enabled by creating a Router and linking/submitting to pages with Link and <Form>:

**How to create route**

* // creating router

// const router = createBrowserRouter([

//   {

//     path: '/',  //slash is top level element

//     element: <Layout/>,

//     children: [

//       {

//         path:"",

//         element: <Home/>

//       },{

//         path:"about",

//         element: <About/>

//       },{

//         path:"contact",

//         element: <Contact/>

//       }

//     ]

//   }

// ])

* //another way to create router

const router = createBrowserRouter(

  createRoutesFromElements(

    <Route path='/' element={<Layout />}>

      <Route path='' element={<Home />}/>

      <Route path='about' element={<About />}/>

      <Route path='contact' element={<Contact />}/>

      <Route path='user/:userid' element={<User />}/>

    </Route>

  ))