**Explain the need and benefits of React Router**  
React Router is a standard library used in React applications to enable navigation between different views or components without reloading the page. It allows for the creation of single-page applications with multiple routes, ensuring that the user experience is seamless and responsive. The benefits of React Router include dynamic routing based on the application's state, the ability to manage browser history and URL structure efficiently, support for nested routes, and improved user navigation without full page reloads.

**Identify the Components in React Router**  
The core components provided by React Router include:

* BrowserRouter: A router component that uses the HTML5 history API to keep the UI in sync with the URL.
* Routes: A container for all Route components, used to define the application's route structure.
* Route: Defines the path and the component to be rendered for that path.
* Link: Used to create navigational links without reloading the page.
* Navigate: Used to programmatically redirect users from one route to another.
* useParams, useNavigate, useLocation: Hooks that allow access to routing information in function components.

**List the types of Router Components**  
The main types of router components in React Router are:

* BrowserRouter: Uses the browser's history API; suitable for standard web applications.
* HashRouter: Uses the URL hash (#) to simulate navigation; useful for static sites or where server configuration is limited.
* MemoryRouter: Keeps the history of your "URL" in memory (does not read or write to the address bar); typically used in testing or non-browser environments.

**Parameter passing via url**  
Parameters can be passed via the URL in React Router by defining dynamic segments in the route path using a colon (:). For example, a route defined as /user/:id can match a URL like /user/101. The value 101 can be accessed using the useParams hook inside the corresponding component. This enables the retrieval of dynamic values directly from the URL and is commonly used for rendering specific content based on user ID, product ID, or other identifiers.