**Q-1 : What is React Router? How does it handle routing in single-page applications?**

**Ans :-** React Router is a popular JavaScript library for managing client-side routing in single-page applications (SPAs) built with React. It enables developers to create dynamic, client-side routing systems that allow users to navigate between different views or pages within an application without requiring a full page reload.

**How it is work :-**

1 Initial Render: When the application is first rendered, React Router renders the component associated with the initial URL.

2 User Navigation: When a user clicks on a link or navigates to a new URL, React Router updates the URL and renders the corresponding component.

3 Route Matching: React Router uses the Route component to match the current URL against a set of predefined routes. When a match is found, React Router renders the associated component.

4 Component Rendering: React Router renders the component associated with the current URL. The component is rendered with the correct props and context.

5 URL Updates: When the user navigates to a new URL, React Router updates the URL using the HTML5 history API. This allows the user to navigate between routes using the browser's back and forward buttons.

**Q-2 Explain the difference between BrowserRouter, Route, Link, and Switch**

**components in React Router.**

**Ans :-**

**Browser Router :-**

Enables client-side routing

Wraps the entire application

Provides the routing context

**Route :-**

Maps a URL path to a React component

Renders the component when the URL matches

Can have optional path parameters

**Link :-**

Creates a link to navigate to a specific route

Updates the URL and renders the corresponding route

Can be used with to prop for external links

**Switch :-**

Renders the first matching route

Iterates through routes and stops at the first match

Ensures only one route is rendered at a time