**React -Advance React- Styling , Routing**

**React- Routing**

**THEORY EXERCISE**

**Question 1: What is React Router? How does it handle routing in single-page applications (SPA)?**

* **React Router** is a standard library used in React for routing in **single-page applications**.
* It enables navigation between different components/views **without reloading** the page by manipulating the browser’s history using the History API.
* It maps specific **URL paths** to specific React components and displays them accordingly.

**Question 2: Explain the difference between BrowserRouter, Route, Link, and Switch components in React Router.**

| **Component** | **Description** |
| --- | --- |
| **BrowserRouter** | The main wrapper that enables routing in the app using HTML5 history API. |
| **Route** | Defines a path and links it to a component that should render when that path is matched. |
| **Link** | Used to navigate between routes without reloading the page (like <a> tag but SPA-friendly). |
| **Switch** (React Router v5) | Renders the **first** matched <Route> among its children. In React Router v6, Routes is used instead. |

**LAB EXERCISE**

**Note**: Make sure to install React Router DOM:

npm install react-router-dom

**Task 1: Basic React Router with Home and About routes**

// App.js

import React from 'react';

import { BrowserRouter as Router, Route, Routes } from 'react-router-dom';

function Home() {

return <h2>Welcome to the Home Page</h2>;

}

function About() {

return <h2>This is the About Page</h2>;

}

function App() {

return (

<Router>

<Routes>

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

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

</Routes>

</Router>

);

}

export default App;

**Task 2: Navigation bar with Links to Home, About, Contact pages**

// App.js

import React from 'react';

import { BrowserRouter as Router, Route, Routes, Link } from 'react-router-dom';

function Home() {

return <h2> Home Page</h2>;

}

function About() {

return <h2> About Page</h2>;

}

function Contact() {

return <h2>Contact Page</h2>;

}

function App() {

return (

<Router>

<nav style={{ margin: 10 }}>

<Link to="/" style={{ marginRight: 10 }}>Home</Link>

<Link to="/about" style={{ marginRight: 10 }}>About</Link>

<Link to="/contact">Contact</Link>

</nav>

<Routes>

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

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

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

</Routes>

</Router>

);

}

export default App;