**Day 5: React Basics and Component Architecture**

**6-Hour Instruction:**

**Understanding React as a Framework:**

● **Introduction to React:**

○ Overview of React as a JavaScript library for building user interfaces.

○ Key features and advantages of React, such as virtual DOM and

component-based architecture.

○ Use cases and scenarios where React is preferred over Angular or other

frameworks.

**Component Lifecycle and Basic Building Blocks of SPA Framework:**

● **Overview of Component Lifecycle:**

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○ Understanding lifecycle methods (componentDidMount, componentDidUpdate,

componentWillUnmount).

○ Managing component state and lifecycle for efficient rendering.

● **Basic Building Blocks:**

○ Introduction to components, modules, services, and routing in React applications.

○ Comparison with Angular’s architecture for better understanding.

**Components, States, and Props:**

● **Creating Functional and Class Components:**

○ Syntax and structure of functional and class components.

○ Best practices for component design and reusability.

● **Managing State within Components:**

○ Utilizing useState and useEffect hooks for state management in functional

components.

○ Understanding the importance of state in dynamic applications.

● **Passing Data between Components using Props:**

○ Implementing props to pass data from parent to child components.

○ Prop drilling and solutions (e.g., context API) for deeper component trees.

**Events and Passing Props:**

● **Handling Events in React:**

○ Overview of event handling in React (e.g., onClick, onChange).

○ Differences in event handling compared to traditional JavaScript.

● **Passing Functions as Props:**

○ Managing state in child components using functions passed as props.

○ Practical exercises: Building interactive components with event handling.

**React Router and More:**

● **Introduction to React Router:**

○ Setting up React Router for client-side navigation.

○ Overview of route configuration and dynamic routing.

● **Creating a Multi-Page React Application:**

○ Practical exercises: Build a multi-page application using React Router to

understand routing concepts.

○ Implementing protected routes for secure areas of the application.

**2-Hour Quiz & Coding Challenge:**

● **Quiz:**

○ Assessment covering key concepts from the day, including React features,

lifecycle methods, state management, and routing.

● **Coding Challenge:**

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○ Build a secure multi-page React application integrating role-based access control

and protecting against common vulnerabilities (CSRF, XSS).

○ Implement input validation and secure session management to demonstrate

understanding of security practices in front-end applications.