

## React Essentials

### 1. Introduction

React is a popular JavaScript library used to build interactive user interfaces. It follows a component-based architecture.

### 2. Components

Components are reusable UI elements. Two types:

- Functional Components
- Class Components

### 3. JSX

JSX allows writing HTML-like code inside JavaScript. It makes UI creation easier and more readable.

### 4. Props

Props (properties) are used to pass data from parent to child components.

### 5. State

State is used to store data within a component. The `useState` hook is commonly used in functional components.

### 6. Lifecycle Methods

Lifecycle methods (like `componentDidMount`) are used in class components. In functional components, React Hooks (such as `useEffect`) handle lifecycle actions.

### 7. Hooks

Hooks provide powerful features:

- `useState` – Manage state
- `useEffect` – Handle side effects
- `useContext` – Manage global data
- `useRef` – Access DOM elements

## 8. Routing

React Router enables navigation between pages without reloading.

## 9. State Management

For large applications, tools like Redux, Context API, and Recoil help manage complex state.

## 10. Conclusion

React is essential for modern web development, offering speed, reusability, and powerful UI capabilities.