**WEEK6**

**1.React Components**

React **components** are **reusable building blocks** of a UI. Each component represents a part of the user interface (like buttons, forms, or pages). You can think of components as **functions** or **classes** that return HTML (JSX) based on input data (called **props**).

**2.Difference Between React Components and JavaScript Functions**

| **Feature** | **React Component** | **JavaScript Function** |
| --- | --- | --- |
| Purpose | Renders UI (JSX) | Performs logic or calculations |
| Return Type | JSX (or null) | Any JavaScript data type |
| Lifecycle | Has lifecycle methods (for class components) | No lifecycle |
| React Hooks | Used in function components only | Not applicable |
| Integration with JSX/DOM | Designed to work with JSX and React rendering | Not designed for UI rendering |

**3.Types of Components in React**

1. **Class Components**
2. **Function Components**
3. (Optional: **Pure Components**, **Higher-Order Components**, but we usually focus on the top two)

**4.Class Component**

A **class component** is a JavaScript class that extends React.Component. It can hold its **own state**, use **lifecycle methods**, and must have a **render()** method.

import React, { Component } from 'react';

class Welcome extends Component {

render() {

return <h1>Hello, {this.props.name}</h1>;

}

} Key points:

* Used before React Hooks were introduced.
* Has access to lifecycle methods like componentDidMount, componentDidUpdate, etc.

**5. Function Component**

A **function component** is a simpler way to write components using a JavaScript function. With the introduction of **Hooks**, function components can now use state and lifecycle features.

function Welcome(props) {

return <h1>Hello, {props.name}</h1>;

}

Or using an arrow function:

const Welcome = (props) => <h1>Hello, {props.name}</h1>;

Function components are **recommended** in modern React (faster, cleaner, and easier).

**6.Component Constructor**

The **constructor()** is a method used in class components to initialize the component’s **state** and bind event handlers.

constructor(props) {

super(props);

this.state = { count: 0 };

}

You must call super(props) before using this inside the constructor.

**7.render() Function**

The render() method is **mandatory** in class components. It returns the JSX that should be displayed on the screen.

render() {

return <div>Hello, World!</div>;

}

It runs every time the component updates or re-renders due to changes in props or state.

