**2. ReactJS – HOL**

**1. Explain React Components**

A **React component** is the **building block** of a React application. Components let you split the UI into **independent, reusable pieces**, and think about each piece in isolation.

There are two main types: **Function components**, **Class components**

***function Welcome() {***

***return <h1>Hello, World!</h1>;***

***}***

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

| **Feature** | **React Component** | **JavaScript Function** |
| --- | --- | --- |
| Purpose | Used to define UI parts | Used for logic, computation, etc. |
| Returns | JSX (UI markup) | Data or values |
| Lifecycle | Has React lifecycle methods (class) | No lifecycle |
| React Hooks Support | Supported (only in function components) | Not applicable |
| Integration | Part of React UI | General-purpose |

**3. Identify the Types of React Components.**

React has two major types of components:

1. **Function Component**
   * Simple JavaScript function that returns JSX
   * Can use **React Hooks** (like useState, useEffect)
   * Preferred in modern React
2. **Class Component**
   * ES6 class that extends React.Component
   * Has access to **lifecycle methods**
   * Uses this.state, this.props

**4. Explain Class Component**

A **class component** is a more powerful way to define a component. It uses a JavaScript class and gives access to:

* state
* props
* lifecycle methods like componentDidMount, render, etc.

***import React, { Component } from 'react';***

***class Welcome extends Component {***

***render() {***

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

***}***

***}***

***export default Welcome;***

**5. Explain Function Component**

A **function component** is a plain JavaScript function that returns JSX. Since React 16.8, function components can use **Hooks** to manage state and lifecycle logic.

**Without Hooks:**

***import React from 'react';***

***function Welcome(props) {***

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

***}***

***export default Welcome;***

**With Hooks:**

***import React, { useState } from 'react';***

***function Counter() {***

***const [count, setCount] = useState(0);***

***return (***

***<div>***

***<p>You clicked {count} times</p>***

***<button onClick={() => setCount(count + 1)}>Click me</button>***

***</div>***

***);***

***}***

**6. Define Component Constructor**

In **class components**, the constructor() is a special method used for:

* Initializing state
* Binding methods

***class Welcome extends React.Component {***

***constructor(props) {***

***super(props);***

***this.state = { name: "React" };***

***}***

***render() {***

***return <h1>Hello {this.state.name}</h1>;***

***}***

***}***

**7. Define render() Function**

The render() method is **required in class components**. It tells React **what to display** on the screen.

* It returns **JSX**
* React calls render() every time the component's state or props change

***render() {***

***return (***

***<div>***

***<h1>This is rendered content</h1>***

***</div>***

***);***

***}***

**2. Create a react app for Student Management Portal named StudentApp and create a component named Home which will display the Message “Welcome to the Home page of Student Management Portal”. Create another component named About and display the Message “Welcome to the About page of the Student Management Portal”. Create a third component named Contact and display the Message “Welcome to the Contact page of the Student Management Portal”. Call all the three components.**

**Step 1:** Open Terminal and create a new react project

***npx create-react-app StudentApp***

***cd StudentApp***

**Step 2:** Create 3 components: **Home, About, Contact.**

**Home.js**

import React from 'react';

function Home() {

  return <h2>Welcome to the Home page of Student Management Portal!!!</h2>;

}

export default Home;

**About.js**

import React from 'react';

function About() {

  return <h2>Welcome to the About page of the Student Management Portal!!!</h2>;

}

export default About;

**Contact.js**

import React from 'react';

function About() {

  return <h2>Welcome to the About page of the Student Management Portal!!!</h2>;

}

export default About;

**App.js**

import React from 'react';

import Home from './components/Home';

import About from './components/About';

import Contact from './components/Contact';

function App() {

  return (

    <div>

      <Home />

      <About />

      <Contact />

    </div>

  );

}

export default App;

**Step 4:** In terminal, type ***npm start*** and this will run your code.

**OUTPUT:**

