**Exercise 2: Create a react app for Student Management Portal**

**1. Explain React Components**

React components are **independent, reusable pieces of UI** in a React application. Each component returns a part of the UI using JSX.

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

| **Feature** | **React Component** | **JavaScript Function** |
| --- | --- | --- |
| Purpose | Used to render UI in React | Performs logical operations |
| Returns | JSX (UI representation) | Usually primitive/data structures |
| Lifecycle Methods | Yes (in class components) | No lifecycle methods |
| React Specific | Yes | No |

**3. Types of Components**

* **Class Components**
* **Functional Components (with Hooks)**

**4. Explain Class Component**

A class component uses ES6 class syntax and has access to lifecycle methods like constructor(), render(), componentDidMount(), etc.

class Home extends React.Component {

render() {

return <h1>Home Component</h1>;

}

}

**5. Explain Function Component**

A function component is a JavaScript function that returns JSX.

function Home() {

return <h1>Home Component</h1>;

}

**6. Define Component Constructor**

constructor() is a special method used in class components to initialize state and bind methods.

constructor(props) {

super(props);

this.state = { message: "Welcome" };

}

**7. Define render() Function**

In class components, render() is used to describe the UI to be rendered.

render() {

return <h1>Hello</h1>;

}

**Lab Steps**

**1. Create a React Project**

npx create-react-app StudentApp

**2. Create "Components" Folder**

Navigate to src/ folder and create a folder named Components.

**3. Create Home.js (Class Component)**

**Location:** src/Components/Home.js

jsx

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import React, { Component } from 'react';

class Home extends Component {

render() {

return (

<div>

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

</div>

);

}

}

export default Home;

**4. Create About.js (Function Component)**

**Location:** src/Components/About.js

import React from 'react';

function About() {

return (

<div>

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

</div>

);

}

export default About;

**5. Create Contact.js (Function Component)**

**Location:** src/Components/Contact.js

import React from 'react';

function Contact() {

return (

<div>

<h2>Welcome to the Contact page of the Student Management Portal</h2>

</div>

);

}

export default Contact;

**6. Edit App.js to Call All Components**

**Location:** src/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;

**7. Run the React Application**

cd StudentApp

npm start

**8. View the Output**

Open your browser and go to:  
➡️ <http://localhost:3000>

**Output on Browser**

Welcome to the Home page of Student Management Portal

Welcome to the About page of the Student Management Portal

Welcome to the Contact page of the Student Management Portal

Each message is rendered in its own <h2> heading

