## **Objectives**

* Explain React components

React components are the fundamental building blocks of a React application. They allow developers to break down complex UIs into smaller, reusable, and manageable pieces. Each component is responsible for rendering a specific part of the user interface and may manage its own data (state) or receive data from parent components via props. React components make applications more organized, scalable, and easier to maintain. They follow a declarative approach, meaning developers describe what the UI should look like, and React takes care of updating it efficiently.

* Identify the differences between components and JavaScript functions

While React components may look similar to regular JavaScript functions, there are notable differences between the two. A JavaScript function is a general-purpose block of reusable code that can perform calculations, handle logic, or return values. In contrast, a React component is specifically designed to return UI elements (written in JSX) and can maintain its own state, respond to lifecycle events, and receive props for dynamic rendering. React components also follow a naming convention where component names must begin with a capital letter, whereas JavaScript functions have no such restriction.

* Identify the types of components

React supports two main types of components: class components and function components. Class components are created using ES6 class syntax and extend React.Component. They support full React features like state management, lifecycle methods (e.g., componentDidMount, componentDidUpdate), and are slightly more verbose. On the other hand, function components are created using plain JavaScript functions. Initially, they were stateless, but with the introduction of React Hooks (such as useState and useEffect), function components can now handle state and side effects, making them the preferred approach in modern React development due to their simplicity and readability.

* Explain class component

A class component is a more traditional way of writing components. It requires a render() method that returns JSX and can use a constructor to initialize state and bind event handlers.

* Explain function component

A function component is a simpler and more concise way to write components. It is a JavaScript function that takes props as an argument and returns JSX.

* Define component constructor

The constructor in a class component is used to initialize the component's internal state and bind event handlers, and it is only needed in class components.

* Define render() function

The render() function, also specific to class components, is used to render JSX to the UI and is triggered whenever React detects a change in props or state.

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.

**OUTPUT:**

