ReactJS Hands-On Lab Report - Student Management Portal

# Objectives

- Explain React components  
- Identify the differences between components and JavaScript functions  
- Identify the types of components  
- Explain class component  
- Explain function component  
- Define component constructor  
- Define render() function

# Concepts and Explanations

## React Components

React components are the building blocks of any React application. A component is a JavaScript function or class that optionally accepts inputs (called props) and returns a React element that describes how a section of the UI should appear.

## Components vs JavaScript Functions

While both are functions, React components return JSX and are used to render UI. Regular JavaScript functions are used for logical operations, data processing, etc.

## Types of Components

1. Functional Components: Simple JavaScript functions that return JSX.  
2. Class Components: ES6 classes that extend React.Component and have additional features like state and lifecycle methods.

## Class Component

A class component uses ES6 class syntax and must include a render() method that returns JSX.

## Function Component

A function component is a simpler way to write components using functions. It returns JSX directly and may use React hooks for state and side effects.

## Component Constructor

In class components, the constructor is used to initialize the component’s state and bind methods.

## render() Function

The render() function is required in class components. It returns the JSX that should be rendered.

# Hands-On Lab: Student Management Portal

Create a React app named 'studentapp' and implement 3 components: Home, About, and Contact.

## Step-by-Step Instructions

1. 1. Open Command Prompt and run: npx create-react-app studentapp
2. 2. Navigate to the project: cd studentapp
3. 3. Open the project in VS Code: code .
4. 4. Inside the 'src' folder, create a new folder named 'Components'.
5. 5. Inside 'Components', create three files: Home.js, About.js, Contact.js.
6. 6. Add code to each component file as shown below.
7. 7. Modify App.js to include and render all three components.
8. 8. Run the project using: npm start
9. 9. Open browser and visit: http://localhost:3000

## Component Code: Home.js

import React from 'react';  
  
function Home() {  
 return (  
 <div>  
 <h2>Welcome to the Home page of Student Management Portal</h2>  
 </div>  
 );  
}  
  
export default Home;

## Component Code: 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;

## Component Code: 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;

## Modified App.js Code

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;





