## **Objectives**

* Explain React components

**React components** are independent, reusable pieces of UI that form the building blocks of a React application. Each component handles its own state, logic, and rendering, making it easy to manage complex user interfaces by breaking them into manageable parts.

* Identify the differences between components and JavaScript functions

1. **Components** are special functions (or classes) used by React to render UI. They return JSX (React’s markup syntax) that describes what should appear on screen.
2. **JavaScript functions** are general-purpose code blocks used for calculations, processing data, etc., and don’t inherently produce UI or interact with React’s rendering.
3. React components often have lifecycle methods (if class-based) and manage local state, whereas regular functions do not.

* Identify the types of components

There are **two main types of React components**:

1. **Class Components:** Defined with ES6 classes. They can hold state and use lifecycle methods.
2. **Function Components:** Defined as JavaScript functions. With React Hooks (from React 16.8+), they can now also manage state and side effects.

* Explain class component

A **class component** is a JavaScript class that extends React Component. It must define a render() method that returns JSX.

* Explain function component

A **function component** is a simple JavaScript function that returns JSX.

* Define component constructor

The **constructor** is a special method in class components that initializes the component’s state and binds event handlers. It’s called once when the component is created.

* Define render() function

The **render()** function (in class components) is required and tells React what to display on the screen. It returns JSX that represents the UI.

1. **Must** return a single root element (like a <div> or a fragment).
2. Called every time the component’s state or props change.

In this hands-on lab, you will learn how to:

* Create a class component
* Create multiple components
* Render a component

## **Prerequisites**

The following is required to complete this hands-on lab:

* Node.js
* NPM
* Visual Studio Code

## **Notes**

Estimated time to complete this lab: **30 minutes.**

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.

1. Create a React project named “StudentApp” type the following command in terminal of Visual studio:

npx create-react-app StudentApp;

1. Create a new folder under Src folder with the name “Components”. Add a new file named “Home.js”
2. Type the following code in Home.js

import React, { Component } from 'react';

class Home extends Component {

  render() {

    return (

      <div>

        <h3> Welcome to the Home Page of Student Management Portal </h3>

      </div>

    );

  }

}

export default Home;

1. Under Src folder add another file named “About.js”
2. Repeat the same steps for Creating “About” and “Contact” component by adding a new file as ”About.js”, “Contact.js” under “Src” folder and edit the code as mentioned for “Home” Component.
3. Edit the App.js to invoke the Home, About and Contact component as follows:

import logo from './logo.svg'; import './App.css';

import Home from './Components/Home';

import About from './Components/About'; import Contact from './Components/Contact';

function App() {

  return (

  <div className="container">

    <Home/>

    <About/>

    <Contact/>

  </div>

  );

}

export default App;

1. In command Prompt, navigate into StudentApp and execute the code by typing the following command:

npm start

1. Open browser and type “localhost:3000” in the address bar:

A screenshot of a computer

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