# 2. ReactJS-HOL

**1. Explain React Components**

**React components** are the building blocks of any React application. They are reusable pieces of UI that can be combined to build complex user interfaces. Each component returns JSX (JavaScript XML), which describes how the UI should look. Components help manage logic, rendering, and state in an organized way.

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

| **Feature** | **JavaScript Function** | **React Component** |
| --- | --- | --- |
| Purpose | Performs a task or returns a value | Returns JSX to render UI |
| Return Type | Can return any type of data | Returns JSX (UI structure) |
| Usage in UI | Not used directly for UI | Used to render parts of the user interface |
| Special Features | No lifecycle or state | Can have lifecycle methods and state (in class) |
| Naming Convention | Can be lowercase | Component names must start with a capital letter |

**3. Types of React Components**

React has two main types of components:

1. **Function Components** – Simple JavaScript functions that return JSX. Ideal for presentational and stateless components.
2. **Class Components** – ES6 classes that extend React.Component, allowing the use of state and lifecycle methods.

**4.Explain Class Component**

A **class component** is a React component defined using a class. It has access to lifecycle methods and can maintain internal state.

**Example:**

import React, { Component } from 'react';

class Welcome extends Component {

render() {

return <h2>Hello from Class Component</h2>;

}

}

**5. Explain Function Component**

A **function component** is a plain JavaScript function that returns JSX. Since React 16.8, function components can also use **hooks** (like useState, useEffect) to manage state and side effects.

**Example:**

import React from 'react';

function Welcome() {

return <h2>Hello from Function Component</h2>;

}

**6. Define Component Constructor**

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

* Initialize state
* Bind event handlers

It’s called **once** when the component is created.

**Example:**

constructor(props) {

super(props);

this.state = { name: 'Student' };

}

**7. Define render() Function**

The **render() function** is a required method in class components. It defines the JSX output of the component. React calls render() automatically to update the UI whenever state or props change.

**Example:**

render() {

return (

<div>

<h2>Welcome, {this.state.name}</h2>

</div>

);

}

**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.**















