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2.React.js – HOL

1. Explain React Components

React components are the building blocks of a React app. Each component is a JavaScript function or class that returns a portion of the UI.

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2. Differences Between Components and JavaScript Functions

Feature	React Component	JavaScript Function
Purpose	Renders UI	Executes logic
Return Value	JSX / React Elements	Primitive/Objects
Integration	Part of React rendering lifecycle	Independent logic unit
Can have state (in class/function with hooks)	Yes	No

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3. Types of Components

- Class Components (older, but still in use)

- Function Components (modern and recommended)

- Pure Components (optimized for performance)

- Higher-Order Components (HOC)

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4. Explain Class Component

A class component is a regular ES6 class that extends React.Component and uses a render() method to return JSX.

```
class MyComponent extends React.Component {

  render() {

    return <h1>Hello</h1>;

  }

}
```

---

5. Explain Function Component

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

```
function MyComponent() {

  return <h1>Hello</h1>;

}
```

---

6. Define Component Constructor

The constructor() is used in class components to:

- Initialize state
- Bind methods

```
constructor(props) {

  super(props);

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

}
```

---

7. Define render() Function

The render() method in a class component returns JSX and is required. It's called whenever the component needs to display content.

Command : npx create-react-app student_app

Home.js

```javascript
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;
```

About.js

```javascript
import React, { Component } from 'react';

class About extends Component {

  render() {

    return (

      <div>

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

      </div>

    );

  }
```
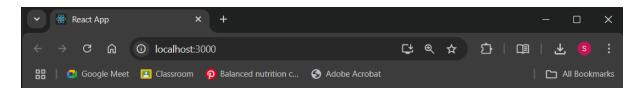
```
}

export default About;
```

Contact.js

```
import React, { Component } from 'react';

class Contact extends Component {

  render() {

    return (

      <div>

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

      </div>

    );

  }

}

export default Contact;
```

App.js

```
import Home from './Components/Home';

import About from './Components/About';

import Contact from './Components/Contact';

function App() {

  return (

    <div className="App">

      <Home />

      <About />
```

```
        <Contact />

      </div>

  );

}

export default App;
```

Command : npm start

Output :