

3.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.

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

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 scorecalculatorapp

CalculateScore.js

```
import React from 'react';

import '../Stylesheets/mystyle.css';

function CalculateScore({ name, school, total, goal }) {

  const average = total / goal;

  return (

    <div className="score-container">

      <h2>Student Score Details</h2>

      <p><strong>Name:</strong> {name}</p>

      <p><strong>School:</strong> {school}</p>

      <p><strong>Total Marks:</strong> {total}</p>

      <p><strong>Subjects:</strong> {goal}</p>

      <p><strong>Average Score:</strong> {average.toFixed(2)}</p>

    </div>

  );

}

export default CalculateScore;
```

mystyle.css

```
.score-container {

  background-color: #f0f8ff;

  padding: 20px;

  margin: 30px auto;
```

```
width: 60%;

border-radius: 10px;

box-shadow: 0 4px 6px rgba(0, 0, 0, 0.1);

font-family: Arial, sans-serif;
}

.score-container h2 {

color: #0077cc;

text-align: center;
}

.score-container p {

font-size: 16px;

margin: 8px 0;
}
```

App.js

```
import React from 'react';

import CalculateScore from './Components/CalculateScore';

function App() {

return (

<div className="App">

<CalculateScore

name="Sashmitha"

school="Green Valley High School"

total={450}

goal={5} />


```

```
</div>

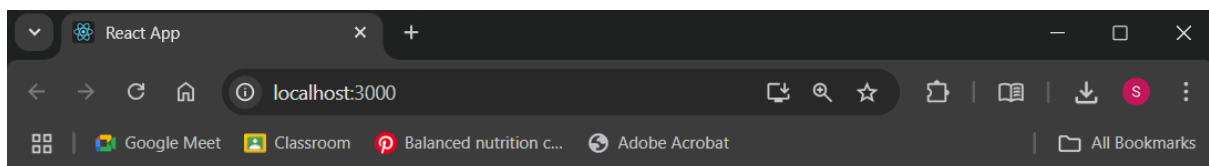
);

}

export default App;
```

Command : npm start

Output :



Student Score Details

Name: Sashmitha
School: Green Valley High School
Total Marks: 450
Subjects: 5
Average Score: 90.00