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3. REACT – JS - HOL

1. Explain React Components

A React component is a reusable, independent piece of UI (User Interface).

- It can be compared to a JavaScript function that returns a JSX element (HTML-like syntax).
- Components can be combined together to build complex UIs.

2. Differences Between Components and JavaScript Functions

React Components	JavaScript Functions
Returns JSX (UI).	Returns values/data (number, string).
Follow React lifecycle.	No lifecycle.
Written with Capital Letters (e.g., Home).	Written with lowercase names (e.g., add).
Used as <Component /> in JSX.	Called as add() in code.
Can manage state and props.	No built-in state or props.

3. Types of Components

React provides two main types of components:

3. Class Components – Older style, uses render() method, can manage state and lifecycle.
4. Function Components – Modern style, uses functions and React Hooks like useState and useEffect.

4. Class Component

- A class component is a JavaScript class that extends `React.Component`.
- It must have a `render()` method which returns JSX.

5. Function Component

- A function that returns JSX.
- Easier to write and understand.
- Can use Hooks for state and lifecycle.

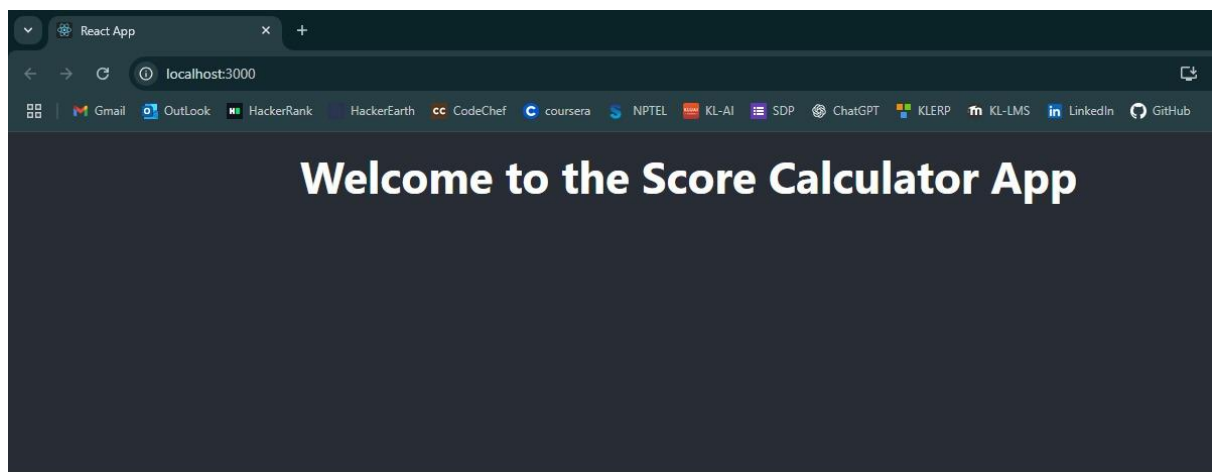
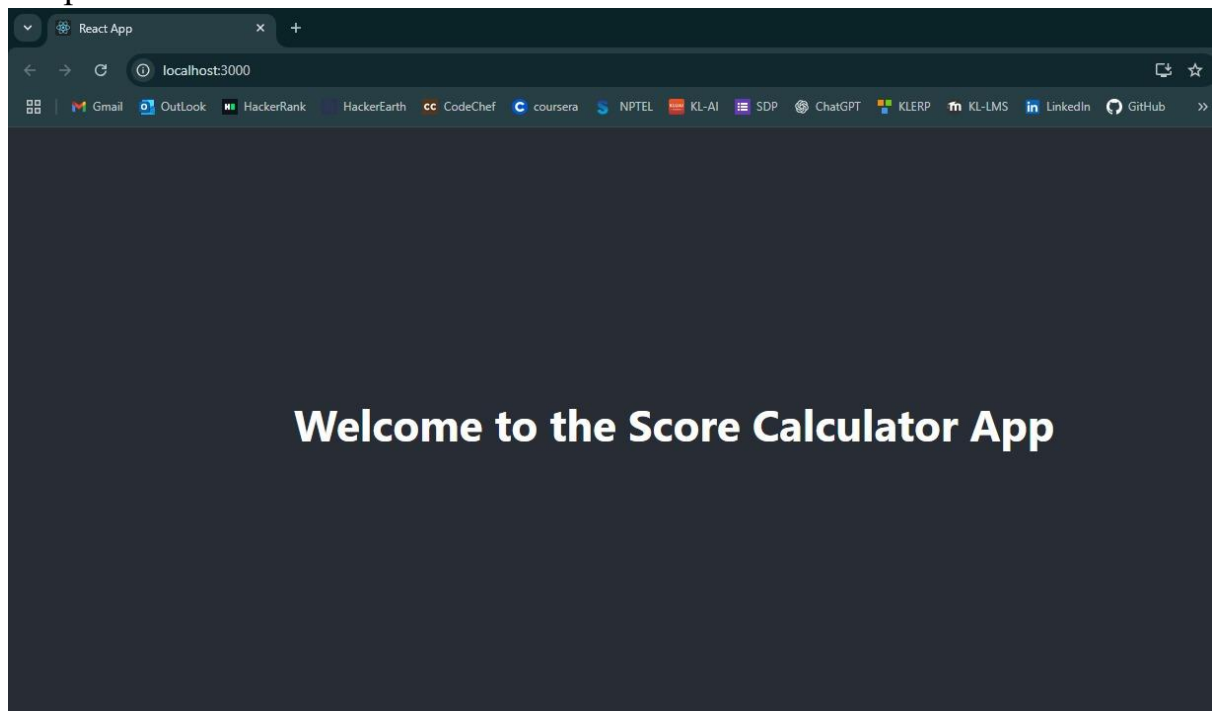
6. Component Constructor

- In class components, `constructor()` is used to:
 - Initialize state.
 - Bind event handlers.
- `constructor` is called before the component is mounted.

7. `render()` Function

- A special method inside class components.
- Mandatory for class components.
- Returns the JSX (HTML-like structure) to display on the screen.

Output:



Student Score Details

Name: Harshitha Tunuguntla

School: KL University

Total Score: 450

Goal: 5

Average Score: 90

App.js:

```
1  import React from 'react';
2  import './App.css';
3  import CalculateScore from './Components/CalculateScore'; //
4  import './Stylesheets/mystyle.css'; // Optional: Import custo
5
6  function App() {
7    return (
8      <div className="App">
9        /* Optional Header */
10       <header className="App-header">
11         <h1>Welcome to the Score Calculator App</h1>
12       </header>
13
14       /* Render the CalculateScore component with props */
15       <CalculateScore
16         name="Harshitha Tunuguntla"
17         school="KL University"
18         total={450}
19         goal={5}
20       />
21     </div>
22   );
23 }
24
25 export default App;
26
```

Mystyle.css:

```
src > Stylesheets > # mystyle.css > p
1  /* mystyle.css */
2  div {
3    padding: 20px;
4    margin: 10px;
5    border: 1px solid #ccc;
6    background-color: #f9f9f9;
7  }
8
9  h2 {
10   color: #333;
11 }
12
13 p {
14   font-size: 16px;
15 }
16
```

Calculatescore.js:

```
src > Components > JS CalculateScore.js > ...
1  import React from 'react';
2  import '../Stylesheets/mystyle.css';
3
4
5  const CalculateScore = ({ name, school, total, goal }) => {
6    // Calculate the average score (this is a placeholder logic
7    const average = total / goal; // Adjust this calculation ba
8
9    return (
10     <div>
11       <h2>Student Score Details</h2>
12       <p>Name: {name}</p>
13       <p>School: {school}</p>
14       <p>Total Score: {total}</p>
15       <p>Goal: {goal}</p>
16       <p>Average Score: {average}</p>
17     </div>
18   );
19 };
20
21 export default CalculateScore;
22 |
```