**Objectives**

**Explain React components**

React components are the building blocks of a React application. They are reusable pieces of code that return HTML-like structures (called JSX), which define how a selection of the UI should appear. Components help developers organize code into smaller, manageable parts. For example, a website may have components like Header, Footer, Home, and Contact, each handling its own layout and functionality.

**Identify the differences between components and JavaScript functions**

|  |  |  |
| --- | --- | --- |
| **Aspect** | **JavaScript Function** | **React Component** |
| Purpose | Performs a task or returns a value | Returns JSX to build UI |
| Return Type | Primitive values (like number, string, etc.) | JSX (HTML-like code) |
| Usage | Called directly in code | Used inside JSX like <ComponentName /> |
| Integration with react | Not Inherently connected | Can use React features like hooks |

**Identify the types of components**

There are two main types of components in React:

1. Class Components – These are ES6 classes that extend React.Component and include a render() method.
2. Function Components – There are simple JavaScript functions that return JSX and can use React hooks for added features like state and lifecycle.

**Explain class component**

A class component is a React component defined using ES6 class. It provides more features that a function component by default, such as managing state and using lifecycle methods. Every class component must have a render() method which return JSX.

**Explain function component**

A function component is a simplest way to create a component in React. It is written using a regular JavaScript function and return JSX directly. With the introduction of hooks, functional components can now also manage state and lifecycle events, making them just as powerful as class components.

**Define component constructor**

The constructor is a special methos used inside a class component. It is called automatically when the component is created. It is commonly used to initialize state and bind members. The constructor must call super(props) before using this.

**Define render() function**

The render() function is required method in a class components. It defines what the component should display on the screen. It must return JSX (React’s HTML-like syntax). React will call this method whenever the component needs to update the UI.

**Create a react app for Student Management Portal named scorecalculatorapp and create a function component named “CalculateScore” which will accept Name, School, Total and goal in order to calculate the average score of a student and display the same.**

**Codes:**

**CalculateScore.js:**

import '../Stylesheets/mystyle.css'

const **percentToDecimal**=(decimal)=>{

    return (decimal.**toFixed**(2)+'%')

}

const **calcScore**=(total,goal)=>{

    return **percentToDecimal**(total/goal)

}

export const **CalculateScore**=({Name,School,total,goal})=>(

    <div *className*="formatstyle">

        <h1><font *color*="Brown">Student Details:</font></h1>

        <div *className*="Name">

            <b><span>Name: </span></b>

            <span>{Name}</span>

        </div>

        <div *className*="School">

            <b><span>School: </span></b>

            <span>{School}</span>

        </div>

        <div *className*="Total">

            <b><span>Total: </span></b>

            <span>{total}</span>

            <span>Marks</span>

        </div>

        <div *className*="Score">

            <b>Score: </b>

            <span>{**calcScore**(total,goal)}</span>

        </div>

    </div>

)

**mystyle.css:**

.Name{

    font-weight:300;

    color:blue;

}

.School{

    color:crimson;

}

.Total{

    color:darkmagenta;

}

.formatstyle{

    text-align:center;

    font-size:large;

}

.Score{

    color:forestgreen;

}

**App.js:**

import { CalculateScore } from './Components/CalculateScore';

function **App**() {

  return (

    <div>

      <**CalculateScore** *Name*={"Steeve"}

*School*={"DNV Public School"}

*total*={284}

*goal*={3}

      />

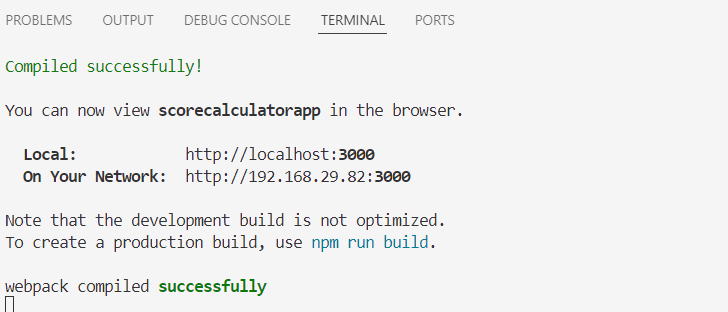
    </div>

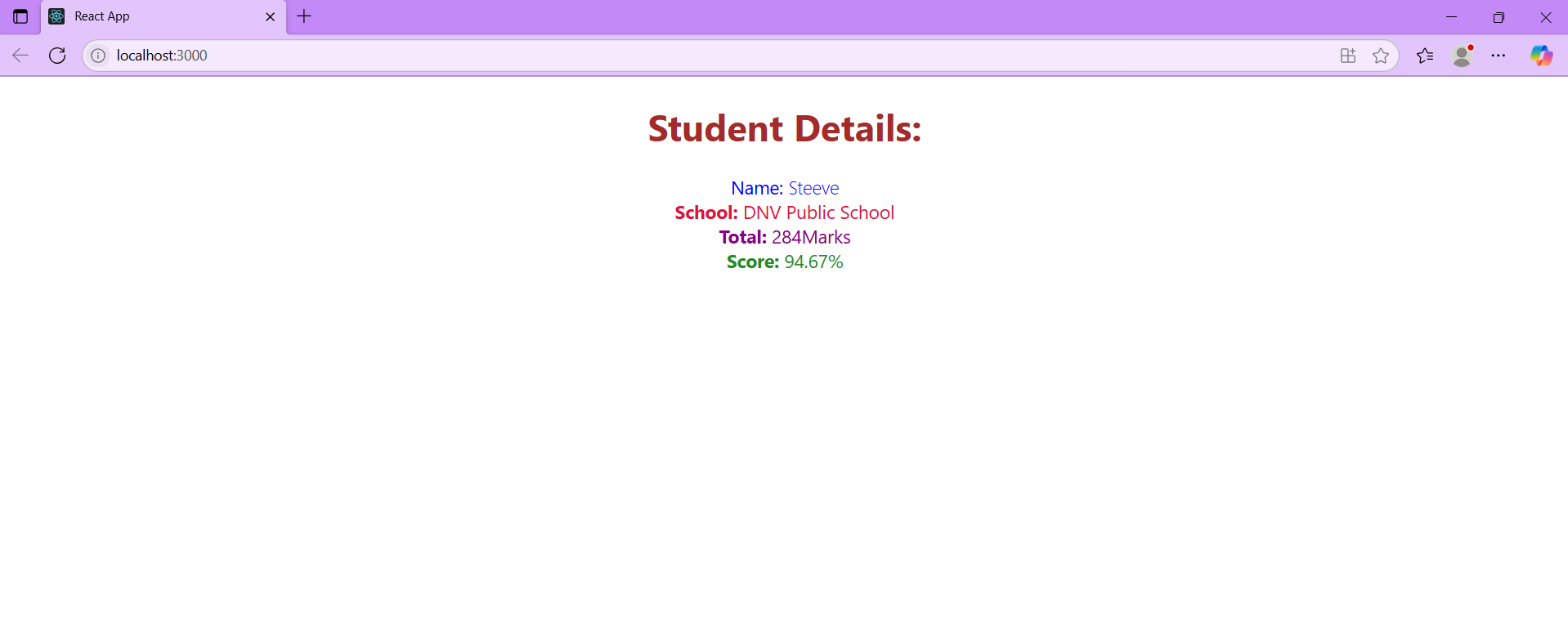
  );

}

export default **App**;

**Output:**

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