Mini Project Report - 11

Master of Computer Application – General
Semester – III

Sub: Web Technologies

Topic: React

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Project Report: Alliance University Login Page using React

1. Introduction

This project is a simple web-based application developed using React, one of the most popular JavaScript libraries for building user interfaces. The main objective of this project is to demonstrate the use of **props** and **useState()** in React through the creation of a basic login page for "Alliance University."

The project displays a welcoming message, a heading, and a login form where the user can enter a username and password. Upon clicking the login button, the application provides a basic response to simulate a successful login attempt. Though this is a small-scale demonstration, it introduces essential React concepts such as state management and passing values using props.

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2. Objective

The primary objectives of this project are:

- To understand and implement the concept of **props** in React.
- To learn how to manage input values using the **useState() hook**.
- To build a simple and interactive login form using React.
- To demonstrate the working of a minimal web application interface.
- To practice event handling in React through form inputs and button clicks.

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3. Tools and Technologies Used

1. **ReactJS** – A JavaScript library for building user interfaces.
2. **JavaScript (ES6)** – For programming logic and React component creation.
3. **HTML** – Used for structuring input fields and headings.
4. **CSS (Optional)** – Can be used for styling the login form.
5. **Node.js & npm** – For running the React application and installing dependencies.
6. **Code Editor (VS Code)** – To write and manage the project code.
7. **Web Browser (Chrome/Edge)** – For testing and viewing the application.

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4. Description of Code

The project code consists of two main components:

(i) Welcome Component

```
function Welcome(props) {
  return <h2>Welcome, {props.name}</h2>;
}
```

This functional component uses **props** to display a personalized welcome message. In this project, the value "Sandra" is passed as a prop.

(ii) App Component

```
function App() {
  const [user, setUser] = useState("");
  const [pwd, setPwd] = useState("");


  return (
    <div>
      <h1>Alliance University</h1>
      <Welcome name="Sandra" />


      <input
        type="text"
        placeholder="Username"
        value={user}
        onChange={(e) => setUser(e.target.value)}
      />
      <br />
      <input
        type="password"
        placeholder="Password"
        value={pwd}
        onChange={(e) => setPwd(e.target.value)}
      />
```

```
      <br />
      <button onClick={() => alert("Login Successful")}>Login</button>
    </div>
  );
}
```

This component demonstrates:

- **useState()** to store and update the entered username and password.
- **onChange event** to capture user input.
- A **Login button** that triggers an alert message when clicked.

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5. Working of the Project

1. The page loads with the heading **Alliance University** and the message **Welcome, Sandra**.
2. The user can type a **username** and **password** into the input fields.
3. The input values are stored in **state variables** using the useState() hook.
4. When the **Login** button is clicked, an alert box appears with the message **"Login Successful"**.
5. This simulates the working of a simple login page in React.

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6. Features

- Simple and interactive design.
- Usage of **props** to display a custom welcome message.
- Usage of **useState()** to manage input fields.
- Basic form handling with event listeners.
- Lightweight and easy-to-understand code.
- Can be easily extended for real authentication.

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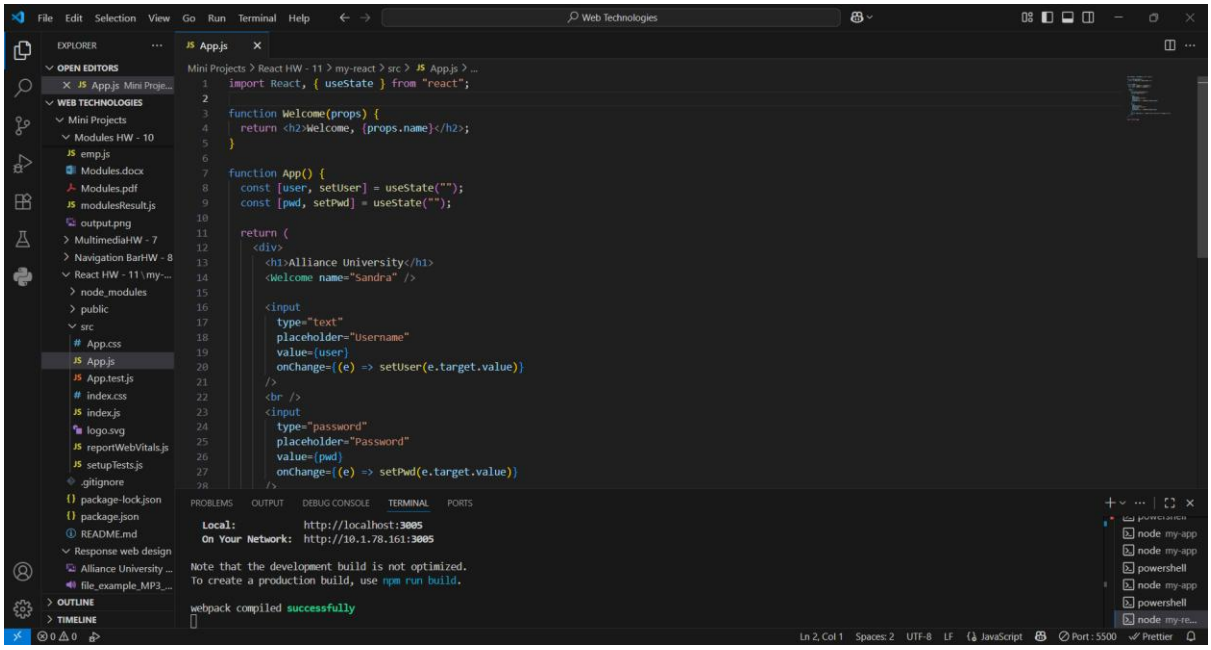
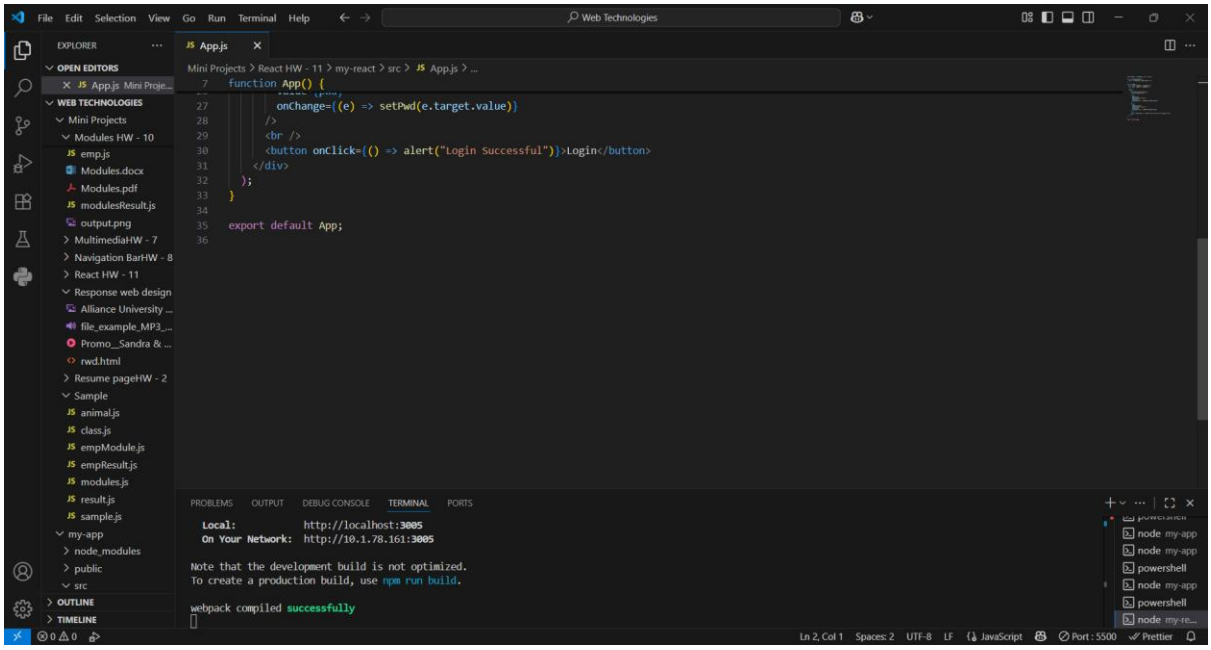
7. Output

The output of the project will be a web page that:

- Displays the heading: **Alliance University**.
- Shows a welcome message using props: **Welcome, Sandra**.
- Provides two input fields: **Username** and **Password**.
- Includes a **Login button** that, when clicked, shows an alert message **"Login Successful"**.





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8. Advantages

- **Beginner-friendly**: Easy for new learners to understand props and useState in React.
- **Reusable Components**: The Welcome component can be reused with different names.
- **Interactive**: The form captures user input dynamically.
- **Lightweight**: Very minimal code with no extra dependencies.
- **Expandable**: Can be enhanced into a real-world login system.

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9. Future Scope

This project can be expanded in many ways:

- Implement real **user authentication** by connecting to a backend API.
- Add **form validation** for username and password fields.
- Improve **UI/UX** with CSS or frameworks like Bootstrap or TailwindCSS.
- Store user data in **databases** like MySQL or MongoDB.
- Enhance with **React Router** to redirect users after login.
- Add **Remember Me** and **Forgot Password** functionality.
- Implement **state management libraries** like Redux for larger applications.

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10. Conclusion

This project demonstrates the fundamental concepts of React, specifically the use of **props** and **useState()**. By building a basic login form for Alliance University, learners can understand how React components interact, how data can be passed as props, and how input fields can be managed using state.

Although the application is simple, it forms the foundation for developing more complex and interactive web applications. This project highlights the importance of starting small, understanding the basics, and then expanding toward full-fledged real-world systems.
