

Web Programming

Lab - 13

React

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Slot: L11+L12+L31+L32

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Course Code: BCSE203E

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Question:

- (i) Create a React component that displays **"Hello, React!"** inside an `<h1>` tag **without JSX**.
(ii) Modify the above code and solve using React JSX
(ii) Modify the above component to display a message stored in a variable.
- Create a component that renders a list of three fruits dynamically.
- Create a component that displays a styled message using inline CSS in JSX.
- Create a component that displays the sum of squares of two numbers inside a `<p>` tag.
- Create a component that displays "Good Morning" if `isMorning` is true, otherwise display "Good Evening."
- Create a React component that displays the current day of the week dynamically using JavaScript's
- Create a React component that checks whether a given number is prime and displays the result.
- Create a React class component called `TemperatureConverter` that allows the user to convert a temperature from **Celsius to Fahrenheit** and **Fahrenheit to Celsius**.
- Create a component that takes a string (e.g., "React") and displays its reverse ("tcaeR") inside a `<p>` tag and display whether the string is palindrome or not
- Create a button that, when clicked, generates and displays a random number between 1 and 100.
- Check If a Year is a Leap Year: Take a year (e.g., 2024) as a variable and display whether it is a leap year or not
- Create a React class component named `UserGreeting` that takes two props: `firstName` and `lastName`. Inside the `render()` method, display a greeting message with the full name of the user in the following format:

"Hello, [First Name] [Last Name]!"

Code:

JSXComponents.js

```
import React, { Component, useState } from "react";

// 1. React component without JSX
const WithoutJSX = () => {
  return React.createElement("h1", null, "Hello, React!");
};
```

```
// 1. React component with JSX
const WithJSX = () => <h1>Hello, React!</h1>;
```

```
// 1. React component displaying a variable message
const MessageComponent = () => {
  const message = "Welcome to React!";
  return <h1>{message}</h1>;
};
```

```
// 2. List of fruits dynamically
const FruitList = () => {
  const fruits = ["Apple", "Banana", "Cherry"];
  return (
    <ul>
      {fruits.map((fruit, index) => (
        <li key={index}>{fruit}</li>
      ))}
    </ul>
  );
};
```

```
// 3. Styled message using inline CSS
const StyledMessage = () => {
  const style = { color: "blue", fontSize: "20px" };
  return <h1 style={style}>Hello, React!</h1>;
};
```

```
    return <p style={style}>This is a styled message.</p>;
  };
```

```
// 4. Sum of squares of two numbers
const SumOfSquares = ({ a, b }) => {
  return <p>Sum of squares: {a * a + b * b}</p>;
};
```

```
// 5. Conditional rendering based on isMorning
const Greeting = ({ isMorning }) => {
  return <h1>{isMorning ? "Good Morning" : "Good Evening"}</h1>;
};
```

```
// 6. Display current day
const CurrentDay = () => {
  const days = ["Sunday", "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday"];
  const today = new Date().getDay();
  return <p>Today is {days[today]}</p>;
};
```

```
// 7. Check if a number is prime
const PrimeCheck = ({ num }) => {
  const isPrime = (n) => {
    if (n < 2) return false;
    for (let i = 2; i < n; i++) {
      if (n % i === 0) return false;
    }
    return true;
  };
  return <p>{num} is {isPrime(num) ? "a prime number" : "not a prime number"}.</p>;
};
```

```
// 8. Temperature Converter (Class Component)
class TemperatureConverter extends Component {
  constructor(props) {
    super(props);
    this.state = { temp: "", result: "" };
  }
}
```

```
  convertToFahrenheit = () => {
    this.setState({ result: (this.state.temp * 9) / 5 + 32 });
  };
}
```

```
  convertToCelsius = () => {
    this.setState({ result: ((this.state.temp - 32) * 5) / 9 });
  };
}
```

```
  handleChange = (e) => {
    this.setState({ temp: e.target.value });
  };
}
```

```
  render() {
    return (
      <div>
        <input type="number" value={this.state.temp} onChange={this.handleChange} />
        <button onClick={this.convertToFahrenheit}>To Fahrenheit</button>
        <button onClick={this.convertToCelsius}>To Celsius</button>
        <p>Converted Temperature: {this.state.result}</p>
      </div>
    );
  }
}
```

```
// 9. Reverse a string and check palindrome
const StringManipulation = ({ text }) => {
  const reversed = text.split("").reverse().join("");
  const isPalindrome = text === reversed;
  return (
    <p>
      Reverse: {reversed} <br /> Palindrome: {isPalindrome ? "Yes" : "No"}
    </p>
  );
};
```

```
);  
};
```

```
// 10. Generate random number on button click  
const RandomNumber = () => {  
  const [number, setNumber] = useState(null);  
  return (  
    <div>  
      <button onClick={() => setNumber(Math.floor(Math.random() * 100) + 1)}>  
        Generate Random Number  
      </button>  
      {number !== null && <p>Random Number: {number}</p>}  
    </div>  
  );  
};
```

```
// 11. Check leap year  
const LeapYearCheck = ({ year }) => {  
  const isLeap = (year % 4 === 0 && year % 100 !== 0) || year % 400 === 0;  
  return <p>{year} is {isLeap ? "a Leap Year" : "not a Leap Year"}.</p>;  
};
```

```
// 12. UserGreeting component (Class Component)  
class UserGreeting extends Component {  
  render() {  
    return <h1>Hello, {this.props.firstName} {this.props.lastName}!</h1>;  
  }  
}
```

```
export {  
  WithoutJSX,  
  WithJSX,  
  MessageComponent,  
  FruitList,  
  StyledMessage,  
  SumOfSquares,  
  Greeting,  
  CurrentDay,  
  PrimeCheck,  
  TemperatureConverter,  
  StringManipulation,  
  RandomNumber,  
  LeapYearCheck,  
  UserGreeting,  
};
```

App.js

```
import React from "react";  
import { WithJSX, MessageComponent, FruitList, StyledMessage, SumOfSquares, Greeting, CurrentDay,  
  PrimeCheck, TemperatureConverter, StringManipulation, RandomNumber, LeapYearCheck, UserGreeting } from  
  "./JSXComponents";  
  
function App() {  
  return (  
    <div>  
      <WithJSX />  
      <MessageComponent />  
      <FruitList />  
      <StyledMessage />  
      <SumOfSquares a={3} b={4} />  
      <Greeting isMorning={true} />  
      <CurrentDay />  
      <PrimeCheck num={7} />  
      <TemperatureConverter />  
      <StringManipulation text="React" />  
      <RandomNumber />  
      <LeapYearCheck year={2024} />  
      <UserGreeting firstName="Sushen" lastName="Grover" />  
    </div>  
  );  
}
```

```
export default App;
```

Output:

Hello, React!

Welcome to React!

- Apple
- Banana
- Cherry

This is a styled message.

Sum of squares: 25

Good Morning

Today is Sunday

7 is a prime number.

<input type="text"/>	To Fahrenheit	To Celsius
----------------------	---------------	------------

Converted Temperature:

Reverse: tcaeR

Palindrome: No

2024 is a Leap Year.

Hello, Sushen Grover!

Hello, React!

Welcome to React!

- Apple
- Banana
- Cherry

This is a styled message.

Sum of squares: 25

Good Morning

Today is Sunday

7 is a prime number.

36	To Fahrenheit	To Celsius
----	---------------	------------

Converted Temperature: 96.8

Reverse: tcaeR

Palindrome: No

Generate Random Number

Random Number: 25

2024 is a Leap Year.

Hello, Sushen Grover!