Web Programming

Exercise 13

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Course Code and Title: BCSE203E
Slot: TE1

1)

(i) Create a React component that displays "Hello, React!" inside a tag without JSX.
(ii) Modify the above code and solve using React JSX
(iii) Modify the above component to display a message stored in a variable

Code:

```
import React from "react";

const HelloReact = () => {
  return React.createElement("h1", null, "Hello, React!");
};

export function HelloReact2() {
  return <h1>Hello, React!</h1>;
}

export function HelloReact3() {
  let message = "Hello";
  return <h1>{message}</h1>;
}
export default HelloReact;
```

2) Create a component that renders a list of three fruits dynamically.

Code:

```
import React from "react";

const FruitList = () => {
  const fruits = ["Apple", "Banana", "Orange"];
  return (
    <ul>
```

```
      {fruits.map((fruit, index) => (
        <li key={index}>{fruit}</li>
      ))}
    </ul>
  );
};

export default FruitList;
```

3) Create a component that displays a styled message using inline CSS in JSX.

Code:

```
import React from "react";

const StyledMessage = () => {
  const style = { color: "blue", fontSize: "20px", fontWeight: "bold" };
  return <p style={style}>This is a styled message!</p>;
};

export default StyledMessage;
```

4) Create a component that displays the sum of squares of two numbers inside a tag.

Code:

```
import React from "react";

const SumOfSquares = ({ a, b }) => {
  const sum = a * a + b * b;
  return <p>Sum of squares: {sum}</p>;
};

export default SumOfSquares;
```

5) Create a component that displays "Good Morning" if isMorning is true, otherwise display "Good Evening."

Code:

```
import React from "react";

const Greeting = ({ isMorning }) => {
  return <h1>{isMorning ? "Good Morning" : "Good Evening"}</h1>;
};
```

```
export default Greeting;
```

6) Create a React component that displays the current day of the week dynamically using JavaScript's

Code:

```
import React from "react";

const DayOfWeek = () => {
  const days = [
    "Sunday",
    "Monday",
    "Tuesday",
    "Wednesday",
    "Thursday",
    "Friday",
    "Saturday",
  ];
  const today = new Date().getDay();
  return <h1>Today is {days[today]}</h1>;
};

export default DayOfWeek;
```

7) Create a React component that checks whether a given number is prime and displays the result.

Code:

```
import React from "react";

const isPrime = (num) => {
  if (num < 2) return false;
  for (let i = 2; i <= Math.sqrt(num); i++) {
    if (num % i === 0) return false;
  }
  return true;
};

const PrimeChecker = ({ number }) => {
  return (
    <p>
      {number} is {isPrime(number) ? "a prime" : "not a prime"} number.
    </p>
  );
};
```

```
export default PrimeChecker;
```

8) Create a React class component called TemperatureConverter that allows the user to convert a temperature from Celsius to Fahrenheit and Fahrenheit to Celsius.

Code:

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

class TemperatureConverter extends Component {
  constructor(props) {
    super(props);
    this.state = { celsius: "", fahrenheit: "" };
  }

  convertToFahrenheit = (celsius) => (celsius * 9) / 5 + 32;
  convertToCelsius = (fahrenheit) => ((fahrenheit - 32) * 5) / 9;

  handleCelsiusChange = (e) => {
    const celsius = e.target.value;
    this.setState({ celsius, fahrenheit: this.convertToFahrenheit(celsius) });
  };

  handleFahrenheitChange = (e) => {
    const fahrenheit = e.target.value;
    this.setState({ fahrenheit, celsius: this.convertToCelsius(fahrenheit) });
  };

  render() {
    return (
      <div>
        <p>Celsius</p>
        <input
          type="number"
          value={this.state.celsius}
          onChange={this.handleCelsiusChange}
          placeholder="Celsius"
        />
        <p>Fahrenheit</p>
        <input
          type="number"
          value={this.state.fahrenheit}
          onChange={this.handleFahrenheitChange}
          placeholder="Fahrenheit"
        />
```

```
      </div>
    );
  }
}

export default TemperatureConverter;
```

9) Create a component that takes a string (e.g., "React") and displays its reverse ("tcaeR") inside a tag and display whether the string is palindrome or not

Code:

```
import React from "react";

const ReverseString = ({ text }) => {
  const reversed = text.split("").reverse().join("");
  const isPalindrome = text.toLowerCase() === reversed.toLowerCase();
  return (
    <div>
      <p>Reversed: {reversed}</p>
      <p>{isPalindrome ? "It's a palindrome" : "It's not a palindrome"}</p>
    </div>
  );
};

export default ReverseString;
```

10) Create a button that, when clicked, generates and displays a random number between 1 and 100.

Code:

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

const RandomNumber = () => {
  const [number, setNumber] = useState(null);

  return (
    <div>
      <button onClick={() => setNumber(Math.floor(Math.random() * 100) + 1)}>
        Generate Random Number
      </button>
      {number && <p>Random Number: {number}</p>}
    </div>
  );
};
```

```
export default RandomNumber;
```

11) 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

Code:

```
import React from "react";

const isLeapYear = (year) => {
  return (year % 4 === 0 && year % 100 !== 0) || year % 400 === 0;
};

const LeapYearChecker = ({ year }) => {
  return (
    <p>
      {year} is {isLeapYear(year) ? "a Leap Year" : "not a Leap Year"}.
    </p>
  );
};

export default LeapYearChecker;
```

12) 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:

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

class UserGreeting extends Component {
  render() {
    const { firstName, lastName } = this.props;
    return (
      <h1>
        Hello, {firstName} {lastName}!
      </h1>
    );
  }
}

export default UserGreeting;
```

App.js

Code:

```
import "./styles.css";
import HelloReact, { HelloReact2, HelloReact3 } from "./HelloReact";
import FruitList from "./FruitList";
import StyledMessage from "./StyledMessage";
import SumOfSquares from "./SumOfSquares";
import Greeting from "./Greeting";
import DayOfWeek from "./DayOfWeek";
import PrimeChecker from "./PrimeChecker";
import TemperatureConverter from "./TemperatureConverter";
import ReverseString from "./ReverseString";
import RandomNumber from "./RandomNumber";
import LeapYearChecker from "./LeapYearChecker";
import UserGreeting from "./UserGreeting";

export default function App() {
  return (
    <div className="App">
      <HelloReact />
      <HelloReact2 />
      <HelloReact3 />
      <FruitList />
      <StyledMessage />
      <SumOfSquares a={5} b={6} />
      <Greeting isMorning={false} />
      <DayOfWeek />
      <PrimeChecker number={5} />
      <TemperatureConverter />
      <ReverseString text={"10101"} />
      <RandomNumber />
      <LeapYearChecker year={"2004"} />
      <UserGreeting firstName="Venkatesh" lastName="B" />
    </div>
  );
}
```

index.js

Code:

```
import React from "react";
import ReactDOM from "react-dom/client";
import App from "./App";

const rootElement = document.getElementById("root")!;
const root = ReactDOM.createRoot(rootElement);

root.render(
  <React.StrictMode>
    <App />
  </React.StrictMode>
);
```

Output: