Exercise 13

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Code:

App.jsx:

import React, { useState } from 'react';

// Exercise 1(i): Create a React component that displays "Hello, React!" without JSX

function HelloReactWithoutJSX() {

  return React.createElement(

    'h1',

    null,

    'Hello, React!'

  );

}

// Exercise 1(ii): Modify the above code using JSX

function HelloReactWithJSX() {

  return (

    <h1>Hello, React!</h1>

  );

}

// Exercise 1(iii): Modify to display a message stored in a variable

function HelloReactWithVariable() {

  const message = "Hello from a variable!";

  return (

    <h1>{message}</h1>

  );

}

// Exercise 2: Create a component that renders a list of three fruits dynamically

function FruitList() {

  const fruits = ["Apple", "Banana", "Orange"];

  return (

    <div>

      <h2>Fruit List</h2>

      <ul>

        {fruits.map((fruit, index) => (

          <li key={index}>{fruit}</li>

        ))}

      </ul>

    </div>

  );

}

// Exercise 3: Component with styled message using inline CSS

function StyledMessage() {

  const styles = {

    color: "blue",

    fontSize: "20px",

    fontWeight: "bold",

    backgroundColor: "#f0f0f0",

    padding: "10px",

    borderRadius: "5px"

  };

  return (

    <div style={styles}>This is a styled message in React!</div>

  );

}

// Exercise 4: Component displaying sum of squares of two numbers

function SumOfSquares() {

  const num1 = 3;

  const num2 = 4;

  const sumOfSquares = (num1 \* num1) + (num2 \* num2);

  return (

    <p>The sum of squares of {num1} and {num2} is: {sumOfSquares}</p>

  );

}

// Exercise 5: Conditional rendering based on isMorning

function Greeting() {

  const isMorning = true; // Change to false to test the other message

  return (

    <h2>{isMorning ? "Good Morning" : "Good Evening"}</h2>

  );

}

// Exercise 6: Display current day of the week

function DayOfWeek() {

  const days = ["Sunday", "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday"];

  const currentDay = new Date().getDay();

  return (

    <h2>Today is {days[currentDay]}</h2>

  );

}

// Exercise 7: Check if a number is prime

function PrimeChecker() {

  const number = 17; // Change this to test different numbers

  const isPrime = (num) => {

    if (num <= 1) return false;

    if (num <= 3) return true;

    if (num % 2 === 0 || num % 3 === 0) return false;

    for (let i = 5; i \* i <= num; i += 6) {

      if (num % i === 0 || num % (i + 2) === 0) return false;

    }

    return true;

  };

  return (

    <div>

      <h2>Prime Number Check</h2>

      <p>

        {number} is {isPrime(number) ? 'a prime number' : 'not a prime number'}.

      </p>

    </div>

  );

}

// Exercise 8: Temperature Converter (Class Component)

class TemperatureConverter extends React.Component {

  constructor(props) {

    super(props);

    this.state = {

      celsius: 0,

      fahrenheit: 32

    };

  }

  handleCelsiusChange = (e) => {

    const celsius = parseFloat(e.target.value);

    const fahrenheit = celsius \* 9/5 + 32;

    this.setState({

      celsius: celsius,

      fahrenheit: fahrenheit

    });

  }

  handleFahrenheitChange = (e) => {

    const fahrenheit = parseFloat(e.target.value);

    const celsius = (fahrenheit - 32) \* 5/9;

    this.setState({

      celsius: celsius,

      fahrenheit: fahrenheit

    });

  }

  render() {

    return (

      <div>

        <h2>Temperature Converter</h2>

        <div>

          <label>

            Celsius:

            <input

              type="number"

              value={this.state.celsius}

              onChange={this.handleCelsiusChange}

            />

          </label>

        </div>

        <div>

          <label>

            Fahrenheit:

            <input

              type="number"

              value={this.state.fahrenheit}

              onChange={this.handleFahrenheitChange}

            />

          </label>

        </div>

      </div>

    );

  }

}

// Exercise 9: Reverse string and check if palindrome

function StringReverser() {

  const inputString = "React";

  const reversedString = inputString.split('').reverse().join('');

  const isPalindrome = inputString.toLowerCase() === reversedString.toLowerCase();

  return (

    <div>

      <h2>String Operations</h2>

      <p>Original: {inputString}</p>

      <p>Reversed: {reversedString}</p>

      <p>Is Palindrome: {isPalindrome ? "Yes" : "No"}</p>

    </div>

  );

}

// Exercise 10: Generate random number on button click

function RandomNumberGenerator() {

  const [randomNumber, setRandomNumber] = useState(null);

  const generateRandomNumber = () => {

    const newRandomNumber = Math.floor(Math.random() \* 100) + 1;

    setRandomNumber(newRandomNumber);

  };

  return (

    <div>

      <h2>Random Number Generator</h2>

      <button onClick={generateRandomNumber}>Generate Random Number</button>

      {randomNumber && <p>Random Number: {randomNumber}</p>}

    </div>

  );

}

// Exercise 11: Check if a year is a leap year

function LeapYearChecker() {

  const year = 2024; // Change this to test different years

  const isLeapYear = (year) => {

    return (year % 4 === 0 && year % 100 !== 0) || (year % 400 === 0);

  };

  return (

    <div>

      <h2>Leap Year Check</h2>

      <p>

        {year} is {isLeapYear(year) ? 'a leap year' : 'not a leap year'}.

      </p>

    </div>

  );

}

// Exercise 12: UserGreeting class component with firstName and lastName props

class UserGreeting extends React.Component {

  render() {

    const { firstName, lastName } = this.props;

    return (

      <h2>Hello, {firstName} {lastName}!</h2>

    );

  }

}

// Main App component that renders all exercise components

function App() {

  return (

    <div style={{ padding: '20px' }}>

      <h1>React JSX Exercises</h1>

      <HelloReactWithoutJSX />

      <HelloReactWithJSX />

      <HelloReactWithVariable />

      <FruitList />

      <StyledMessage />

      <SumOfSquares />

      <Greeting />

      <DayOfWeek />

      <PrimeChecker />

      <TemperatureConverter />

      <StringReverser />

      <RandomNumberGenerator />

      <LeapYearChecker />

      <UserGreeting firstName="Vinit " lastName="Yadav" />

    </div>

  );

}

export default App;

Output:

