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Web Technology Practical 4

Implement an application in Java Script using following:

- a) Design UI of application using HTML, CSS etc.
- b) Include Java script validation
- c) Use of prompt and alert window using Java Script

Code

```
<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Scientific Calculator</title>

<style>

.calculator {

width: 450px;

background: navy;

padding: 30px;

border-radius: 20px;

text-align: center;

box-shadow: 20px 20px 20px lightskyblue;

}

#display {

width: 100%;
```

```
height: 50px;  
font-size: 1.5em;  
text-align: right;  
background: #1a2a42;  
color: white;  
padding: 10px;  
border: none;  
border-radius: 10px;  
}  
  
.buttons {  
display: grid;  
grid-template-columns: repeat(6, 1fr);  
gap: 10px;  
margin-top: 20px;  
}  
  
.btn {  
padding: 15px;  
font-size: 25px;  
border: none;  
background: #2b4a6f;  
color: white;  
cursor: pointer;  
border-radius: 10px;  
transition: 0.2s;  
}
```

```
.btn:hover {  
    background: lightskyblue;  
    transform: scale(1.5);  
}  
  
</style>  
  
</head>  
  
<body><center><h1>Scientific Calculator</h1>  
<h3>Piyusha Supe</h3>  
<div class="calculator">  
    <input type="text" id="display" disabled>  
    <div class="buttons">  
        <button class="btn" onclick="clearDisplay()">C</button>  
        <button class="btn" onclick="calculate()">=</button>  
        <button class="btn" onclick="append('(')">(</button>  
        <button class="btn" onclick="append(')')">)</button>  
        <button class="btn" onclick="append('Math.log()')">ln</button>  
        <button class="btn" onclick="append('Math.sin(toRadians())')">sin</button>  
        <button class="btn" onclick="append('1')">1</button>  
        <button class="btn" onclick="append('2')">2</button>  
        <button class="btn" onclick="append('3')">3</button>  
        <button class="btn" onclick="append('+')">+</button>  
        <button class="btn"  
            onclick="append('Math.log10()')>log<sub>&nbsp;10</sub></button>  
        <button class="btn" onclick="append('Math.cos(toRadians())')">cos</button>  
        <button class="btn" onclick="append('4')">4</button>  
        <button class="btn" onclick="append('5')">5</button>
```

```
<button class="btn" onclick="append('6')">6</button>

<button class="btn" onclick="append('-')">-</button>

<button class="btn"
onclick="append(Math.log2())">log&nbsp;2</sub></button>

<button class="btn" onclick="append('Math.tan(toRadians())')">tan</button>

<button class="btn" onclick="append('7')">7</button>

<button class="btn" onclick="append('8')">8</button>

<button class="btn" onclick="append('9')">9</button>

<button class="btn" onclick="append('/')">/</button>

<button class="btn" onclick="append('**')">x&nbsp;n</sup></button>

<button class="btn" onclick="append('Math.asin()')">sin&nbsp;n</sup></button>
1</sup></button>

<button class="btn" onclick="append('.')">.</button>

<button class="btn" onclick="append('0')">0</button>

<button class="btn" onclick="append('Math.PI')"> $\pi$ </button>

<button class="btn" onclick="append('*')">*</button>

<button class="btn" onclick="append('**2')">x&nbsp;2</sup></button>

<button class="btn" onclick="append('Math.acos()')">cos&nbsp;n</sup></button>
1</sup></button>

<button class="btn" onclick="append('Math.E')">e</button>

<button class="btn" onclick="append('Math.exp()')">e&nbsp;x</sup></button>

<button class="btn" onclick="append('Math.sqrt()')"> $\sqrt{ }$ </button>

<button class="btn" onclick="append('%')">%</button>

<button class="btn" onclick="append('factorial()')">x!</button>

<button class="btn" onclick="append('Math.atan()')">tan&nbsp;n</sup></button>
1</sup></button>

</div>
```

```
</div>

<script>

function append(value) {

    document.getElementById("display").value += value;

}

function clearDisplay() {

    document.getElementById("display").value = "";

}

function calculate() {

    try {

        let expression = document.getElementById("display").value;

        let result = eval(expression.replace(/factorial\((\d+)\)/g, (_, num) =>
factorial(parseInt(num))));

        document.getElementById("display").value = result;

    } catch (error) {

        alert("Error! Maybe you missed a parentheses!");

    }

}

function toRadians(degrees) {

    return degrees * (Math.PI / 180);

}

function factorial(n) {

    if (n === 0 || n === 1) return 1;

    let result = 1;

    for (let i = 2; i <= n; i++) {

        result *= i;

    }

}
```

```
}
```

```
    return result;
```

```
}
```

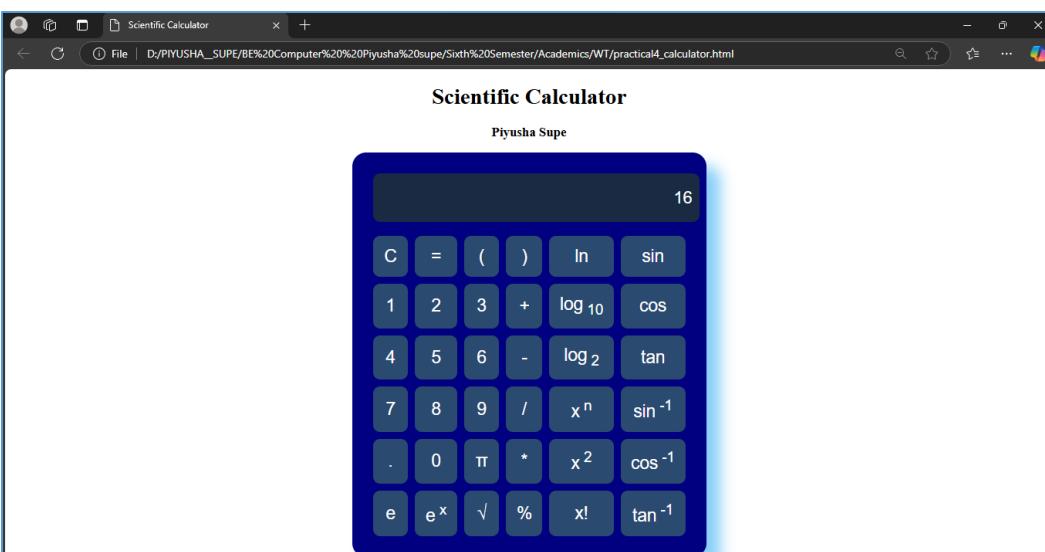
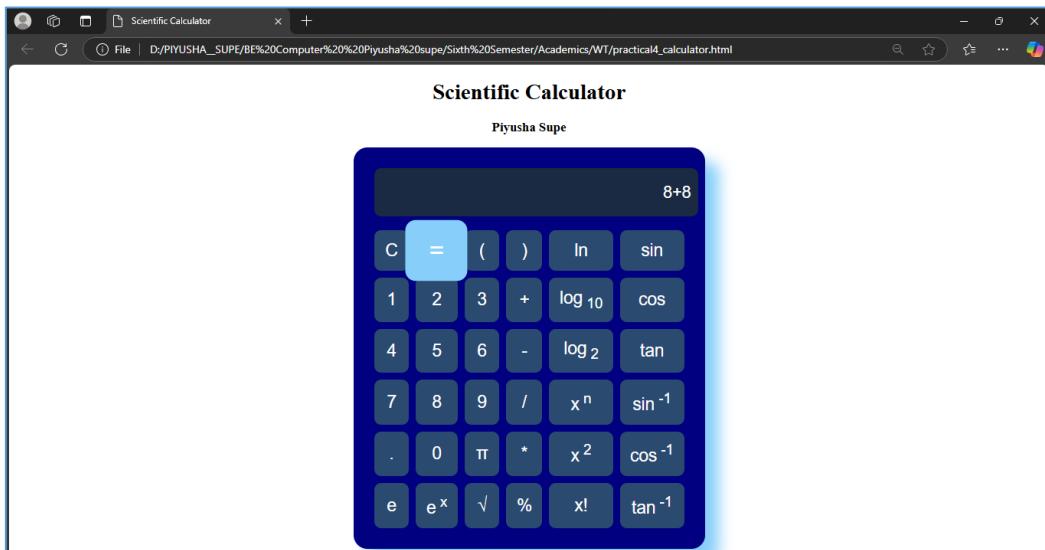
```
</script>
```

```
</center>
```

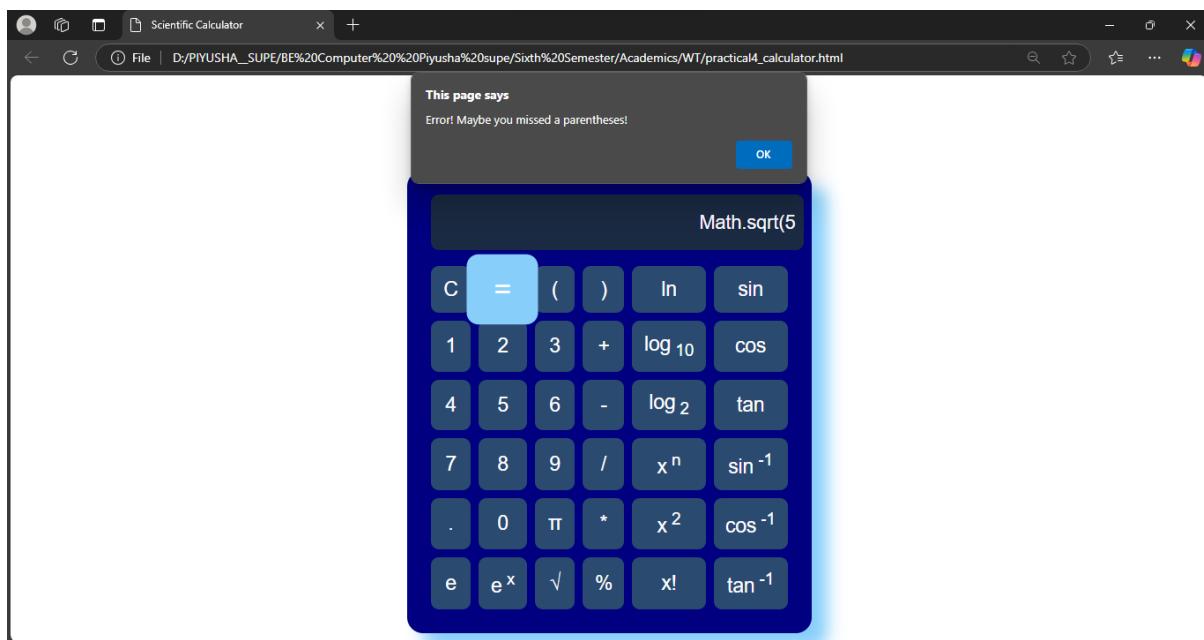
```
</body>
```

```
</html>
```

OUTPUT:



Error messages displayed using alert()



Two side-by-side screenshots of a web-based scientific calculator. Both have a dark blue background and light blue buttons. The left screenshot shows the display with "6**3" and the "x^n" button highlighted with a blue glow. The right screenshot shows the display with "216" and the "x^n" button highlighted with a blue glow. Both screenshots include the title "Scientific Calculator" and the author "Piyusha Supe" at the top.