Lab Practice -2 [404184C] : ELECTIVE-III(C) - JavaScript

ACADEMIC YEAR: 2024-25

CLASS	**: BE**	**DIV**	**: 7**	**Batch**	**: R-7**	**DATE**	**:**
Roll No	**42305**	**ABC ID**	**: 810-360-343-871**			**SEMESTER**	**: I**

Experiment No.: 1

HTML ➔

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Area Calculator</title>
  <!-- Link to external CSS -->
  <link rel="stylesheet" href="style_1.css">
</head>
<body>
  <div class="container">
    <h2>Area Calculator</h2>
    <!-- Triangle -->
    <h3>Triangle (Heron's Formula)</h3>
    <input type="number" id="sideA" placeholder="Enter side A">
    <input type="number" id="sideB" placeholder="Enter side B">
    <input type="number" id="sideC" placeholder="Enter side C">
    <button onclick="calculateTriangleArea()">Calculate Triangle Area</button>
    <div class="result" id="triangleResult"></div>
    <!-- Rectangle -->
    <h3>Rectangle</h3>
```

```
 <input type="number" id="length" placeholder="Enter length">
    <input type="number" id="width" placeholder="Enter width">
    <button onclick="calculateRectangleArea()">Calculate Rectangle Area</button>
    <div class="result" id="rectangleResult"></div>
    <!-- Circle -->
    <h3>Circle</h3>
    <input type="number" id="radius" placeholder="Enter radius">
    <button onclick="calculateCircleArea()">Calculate Circle Area</button>
    <div class="result" id="circleResult"></div>
  </div>
   <!-- Display name and roll number -->
    <div class="info">
      <h2>Name: Teena Bambal</h2>
      <h3>Roll Number: 42305</h3>
    </div>
  </div>
  <!-- Link to external JavaScript -->
  <script src="script_1.js"></script>
</body>
</html>
```

CSS ➔

```
body {
  font-family: Arial, sans-serif;
  display: flex;
  justify-content: center;
  align-items: center;
  height: 100vh;
  margin: 0;
  background-color: #f4f4f4;
}
.container {
  text-align: center;
  padding: 20px;
  background-color: #ffffff;
  border-radius: 10px;
  box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);
}
h2 {
  color: #333;
  margin-bottom: 20px;
}
input {
  margin: 10px 0;
  padding: 8px;
  width: 80%;
  border: 1px solid #ccc;
  border-radius: 5px;
}
```

```
button {
  padding: 10px 20px;
  background-color: #28a745;
  color: white;
  border: none;
  border-radius: 5px;
  cursor: pointer;
  margin-top: 10px;
}
button:hover {
  background-color: #218838;
}
.result {
  margin-top: 20px;
  font-size: 18px;
  color: #555;
}
.result.error {
  color: red;
}
.result.success {
  color: green;
}
```

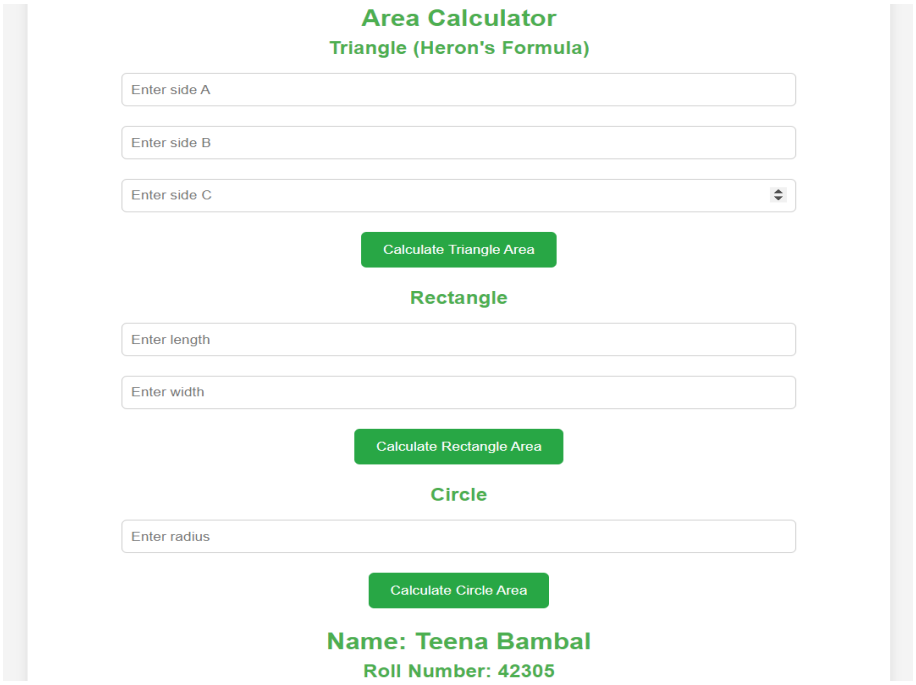
JavaScript ➔

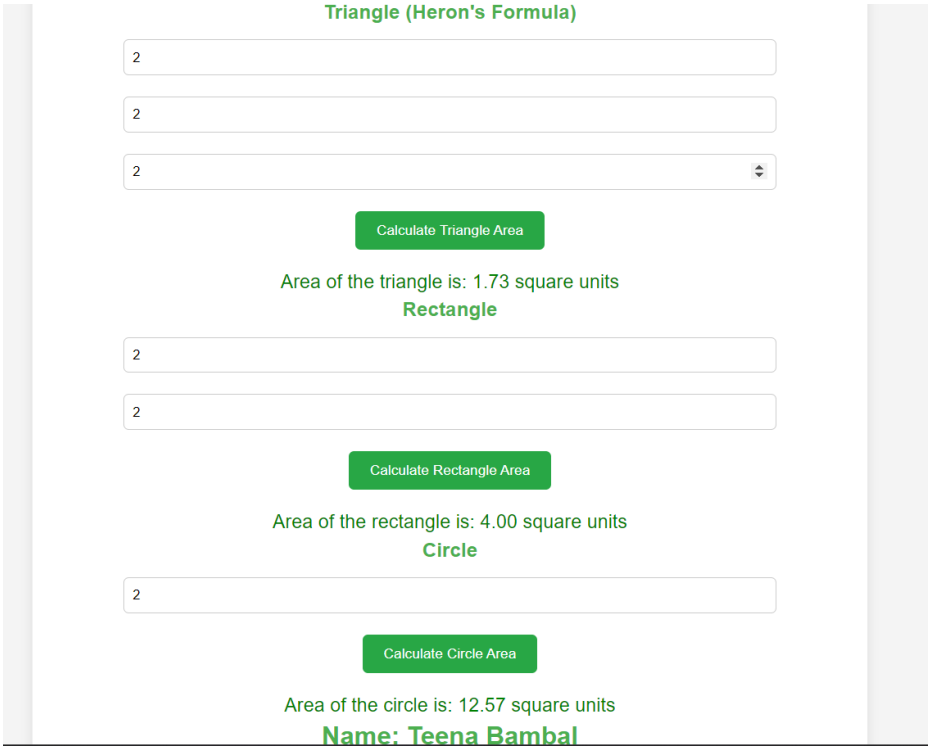
```
// Function to check if the triangle is valid
function isValidTriangle(a, b, c) {
  return a + b > c && a + c > b && b + c > a;
}
// Function to calculate the area of the triangle using Heron's formula
function calculateTriangleArea() {
  const a = parseFloat(document.getElementById("sideA").value);
  const b = parseFloat(document.getElementById("sideB").value);
  const c = parseFloat(document.getElementById("sideC").value);
  if (isNaN(a) || isNaN(b) || isNaN(c)) {
    document.getElementById("triangleResult").innerHTML =
      "Please enter valid numbers for all sides.";
    document.getElementById("triangleResult").classList.add("error");
    return;
  }
  if (!isValidTriangle(a, b, c)) {
    document.getElementById("triangleResult").innerHTML =
      "The sides do not form a valid triangle.";
    document.getElementById("triangleResult").classList.add("error");
    return;
  }
  const s = (a + b + c) / 2;
  const area = Math.sqrt(s * (s - a) * (s - b) * (s - c));
```

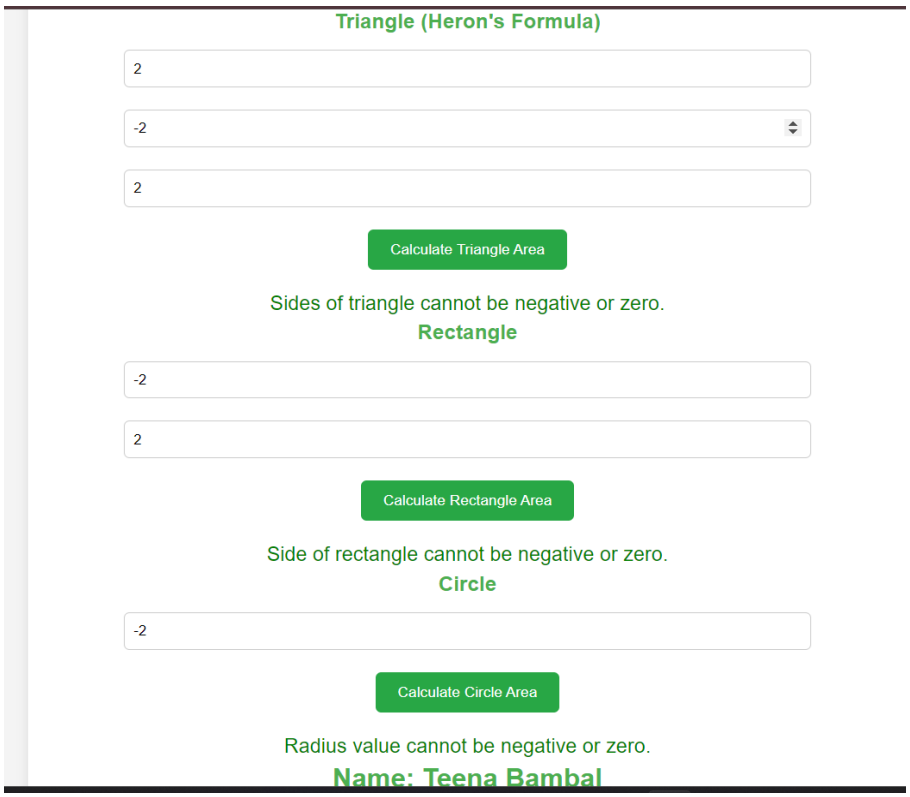
```
 document.getElementById(
    "triangleResult"
  ).innerHTML = `Area of the triangle is: ${area.toFixed(2)} square units`;
  document.getElementById("triangleResult").classList.remove("error");
  document.getElementById("triangleResult").classList.add("success");
}
// Function to calculate the area of a rectangle
function calculateRectangleArea() {
  const length = parseFloat(document.getElementById("length").value);
  const width = parseFloat(document.getElementById("width").value);
  if (isNaN(length) || isNaN(width)) {
    document.getElementById("rectangleResult").innerHTML =
      "Please enter valid numbers for length and width.";
    document.getElementById("rectangleResult").classList.add("error");
    return;
  }
  const area = length * width;
  document.getElementById(
    "rectangleResult"
  ).innerHTML = `Area of the rectangle is: ${area.toFixed(2)} square units`;
  document.getElementById("rectangleResult").classList.remove("error");
  document.getElementById("rectangleResult").classList.add("success");
}
```

```
// Function to calculate the area of a circle
function calculateCircleArea() {
  const radius = parseFloat(document.getElementById("radius").value)
  if (isNaN(radius)) {
    document.getElementById("circleResult").innerHTML =
      "Please enter a valid radius.";
    document.getElementById("circleResult").classList.add("error");
    return;
  }
  const area = Math.PI * Math.pow(radius, 2);
  document.getElementById(
    "circleResult"
  ).innerHTML = `Area of the circle is: ${area.toFixed(2)} square units`;
  document.getElementById("circleResult").classList.remove("error");
  document.getElementById("circleResult").classList.add("success");
}
```

Output➔


Area Calculator
Triangle (Heron's Formula)
Enter side A
Enter side B
Enter side C
Calculate Triangle Area
Rectangle
Enter length
Enter width
Calculate Rectangle Area
Circle
Enter radius
Calculate Circle Area
Name: Teena Bambal
Roll Number: 42305


Triangle (Heron's Formula)
2
2
2
Calculate Triangle Area
Area of the triangle is: 1.73 square units
Rectangle
2
2
Calculate Rectangle Area
Area of the rectangle is: 4.00 square units
Circle
2
Calculate Circle Area
Area of the circle is: 12.57 square units
Name: Teena Bambal



Date: Course Teacher Sign