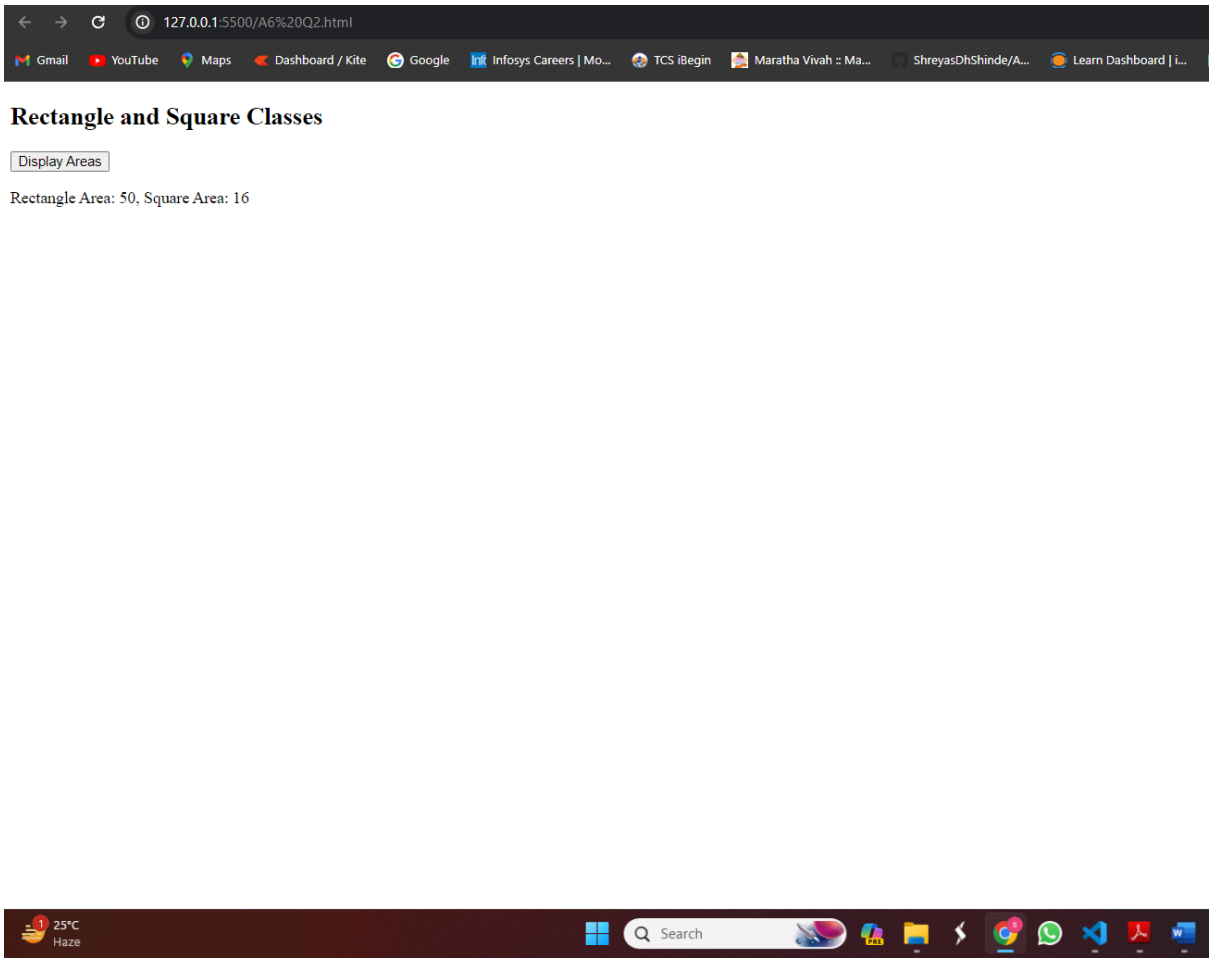
Q.1 Perform the following operations to provide the implementation for a Rectangle class. The operations are:

1. Add an area() method to the Rectangle class.
2. Create a Square class that satisfies the following conditions:
   - It is a subclass of Rectangle.
   - It contains a constructor and no other methods.
   - It can use the Rectangle class' area method to print the area of a Square object.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Rectangle and Square Classes</title>
  <script>
    class Rectangle {
      constructor(width, height) {
        this.width = width;
        this.height = height;
      }

      area() {
        return this.width * this.height;
      }
    }

    class Square extends Rectangle {
      constructor(side) {
        // Inherit the constructor from the Rectangle class
        super(side, side);
      }
    }

    function displayResults() {
      const rectangle = new Rectangle(5, 10);
      const square = new Square(4);

      const rectangleArea = rectangle.area();
      const squareArea = square.area();

      document.getElementById('output').textContent = `Rectangle Area:
${rectangleArea}, Square Area: ${squareArea}`;
    }
  </script>
</head>
<body>
  <h2>Rectangle and Square Classes</h2>
  <button onclick="displayResults()">Display Areas</button>
  <p id="output"></p>
</body>
```

```
</html>
```

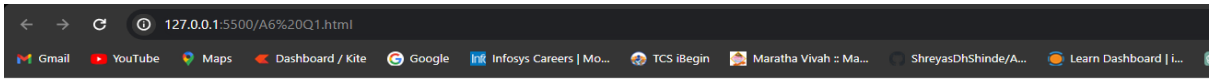
OUTPUT



Q.2 Write a JavaScript function find_largest to return the nth largest number in an array

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Nth Largest Number Finder</title>
  <script>
    function find_largest(arr, n) {
      // Check if the array has at least n elements
      if (n > arr.length) {
        return "Invalid input: The array does not have enough elements.";
      }

      // Sort the array in descending order
      const sortedArray = arr.sort((a, b) => b - a);

      // Return the nth largest element
      return sortedArray[n - 1];
    }

    function findAndDisplay() {
      const inputArray = [3, 45, 6, 7, 23, 5, 7, 8];
      const n = parseInt(document.getElementById('nthInput').value);
      const result = find_largest(inputArray, n);

      document.getElementById('output').textContent = `Result: ${result}`;
    }
  </script>
</head>
<body>
  <h2>Nth Largest Number Finder</h2>
  <label for="nthInput">Enter the value of n:</label>
  <input type="number" id="nthInput">
  <button onclick="findAndDisplay()">Find Nth Largest</button>
  <p id="output"></p>
</body>
</html>
```

Output



Nth Largest Number Finder

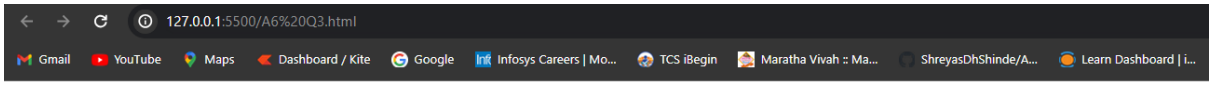
Enter the value of n: 3 Find Nth Largest

Result: 8

Q.3 Write a JavaScript program which accept a number as input in the function parameter and insert dashes (-) between each two even numbers.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Even Number Dasher</title>
  <script>
    function insertDashesBetweenEvens(inputNumber) {
      // Convert the number to a string to iterate through each digit
      const numString = inputNumber.toString();
      let result = '';

      for (let i = 0; i < numString.length; i++) {
        const currentDigit = parseInt(numString[i]);
        const nextDigit = parseInt(numString[i + 1]);

        result += currentDigit;

        // Check if both the current and next digits are even
        if (currentDigit % 2 === 0 && nextDigit % 2 === 0) {
          result += '-';
        }
      }

      // Output the result
      document.getElementById('output').textContent = result;
    }
  </script>
</head>
<body>
  <h2>Even Number Dasher</h2>
  <label for="inputNumber">Enter a number:</label>
  <input type="number" id="inputNumber">
  <button
onclick="insertDashesBetweenEvens(document.getElementById('inputNumber').value
)">Insert Dashes</button>
  <p>Result: <span id="output"></span></p>
</body>
</html>
```

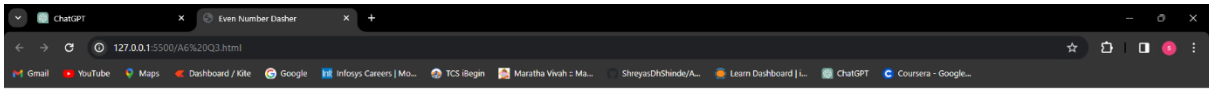
Output



Even Number Dasher

Enter a number: 025468 Insert Dashes

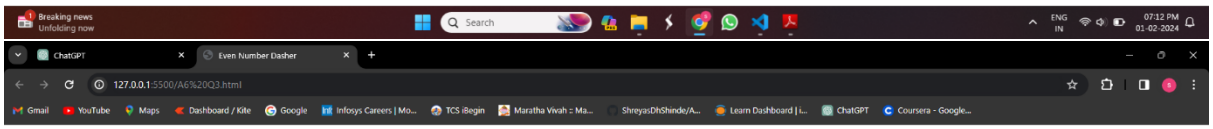
Result: 0-254-6-8



Even Number Dasher

Enter a number: 025468 Insert Dashes

Result: 0-254-6-8



Even Number Dasher

Enter a number: 025468 Insert Dashes

Result: 0-254-6-8