Q.1 Write a JavaScript program to take an array as input from the user and calculate the sum of numbers in odd places and the sum of numbers at even places.
a) Print the difference between the two sums
b) Print the number of elements in odd places
c) Print the number of elements in even places
d) Print the average of all elements in the array
e) Print GCD of Sum of Numbers at Odd Places and Sum of Numbers at Even Places

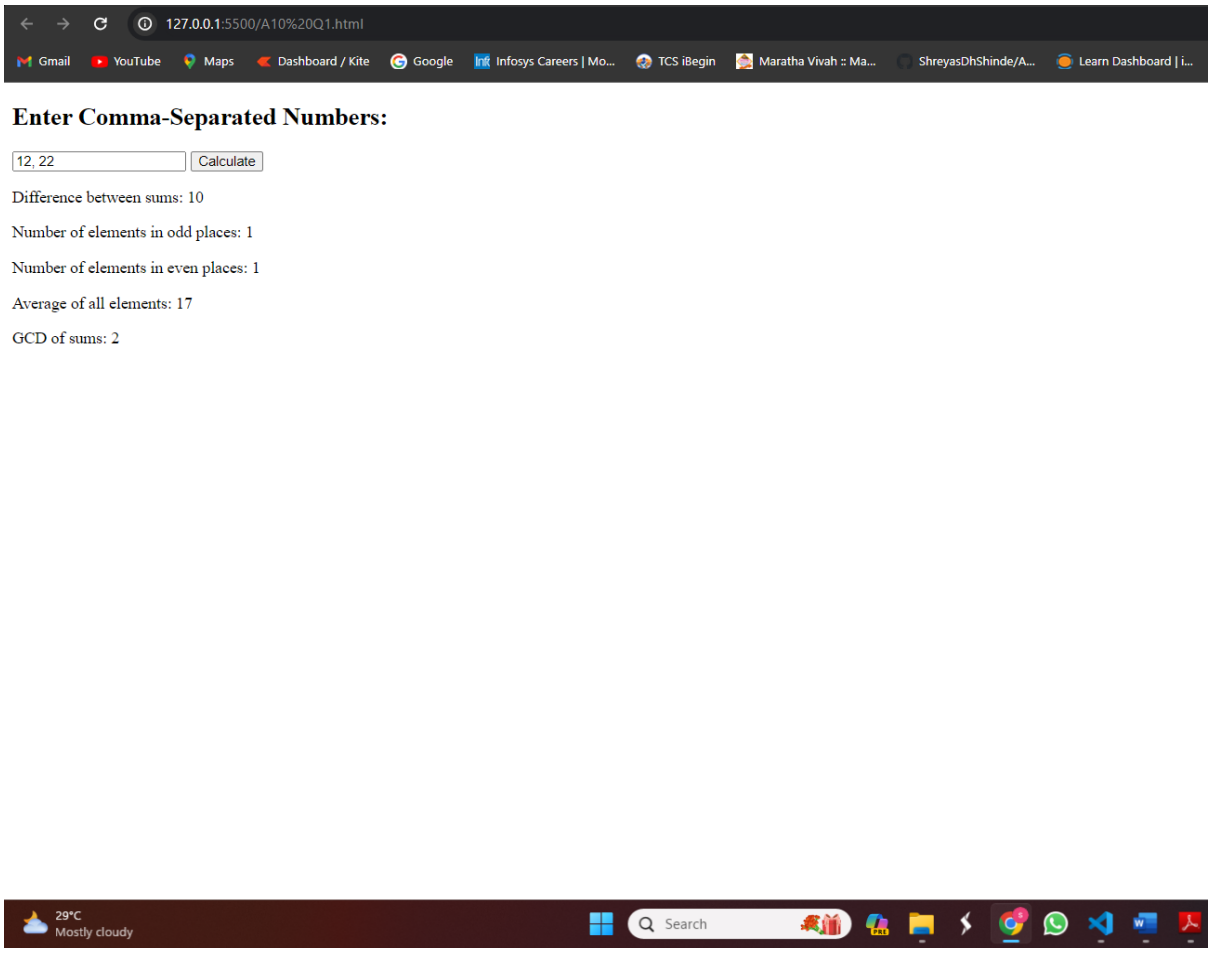
Ans:

```
<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

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

<title>Array Calculation</title>

<script>

function calculate() {

   // Get input array from the user

   const inputArray = document.getElementById("inputArray").value.split(",").map(Number);


   // Initialize variables for sum of numbers at odd and even places, number of elements at odd and even places

   let sumOdd = 0, sumEven = 0, countOdd = 0, countEven = 0;


   // Calculate sum of numbers at odd and even places and count of elements at odd and even places

   for (let i = 0; i < inputArray.length; i++) {

      if (i % 2 === 0) { // Even index

         sumEven += inputArray[i];

         countEven++;

      } else { // Odd index

         sumOdd += inputArray[i];

         countOdd++;

      }

   }
```

```
    // Calculate difference between the sums
    const difference = Math.abs(sumOdd - sumEven);

    // Calculate average of all elements
    const totalSum = inputArray.reduce((acc, curr) => acc + curr, 0);
    const average = totalSum / inputArray.length;

    // Calculate GCD of sum of numbers at odd places and sum of numbers at even places
    const gcd = calculateGCD(sumOdd, sumEven);

    // Display results
    document.getElementById("difference").innerText = "Difference between sums: " + difference;
    document.getElementById("countOdd").innerText = "Number of elements in odd places: " +
countOdd;
    document.getElementById("countEven").innerText = "Number of elements in even places: " +
countEven;
    document.getElementById("average").innerText = "Average of all elements: " + average;
    document.getElementById("gcd").innerText = "GCD of sums: " + gcd;
}

function calculateGCD(a, b) {
    if (b === 0) {
        return a;
    }
    return calculateGCD(b, a % b);
}
</script>
</head>
<body>
<h2>Enter Comma-Separated Numbers:</h2>
<input type="text" id="inputArray">
```

```
<button onclick="calculate()">Calculate</button>
<div id="results">
    <p id="difference"></p>
    <p id="countOdd"></p>
    <p id="countEven"></p>
    <p id="average"></p>
    <p id="gcd"></p>
</div>
</body>
</html>
```

OUTPUT



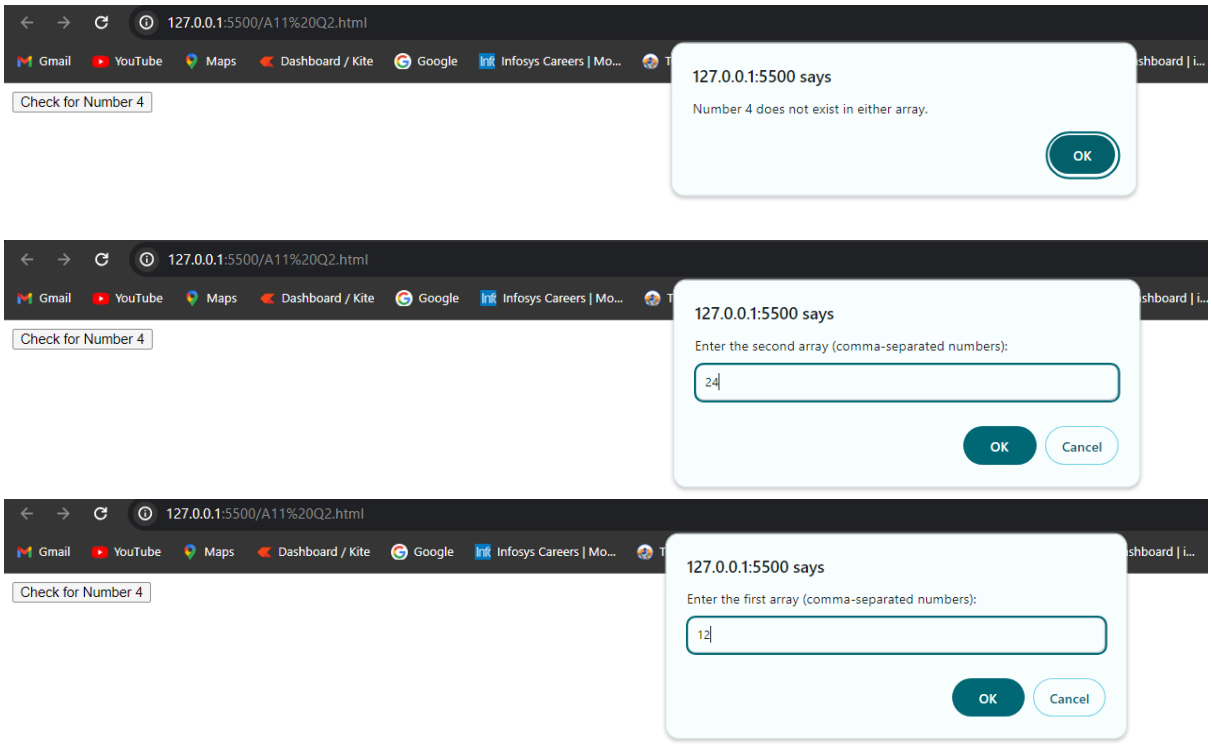
Q.2 Write a JavaScript program to take 2 arrays from the user and check if the number 4 exists in any of the arrays, or both of the arrays.

Ans:

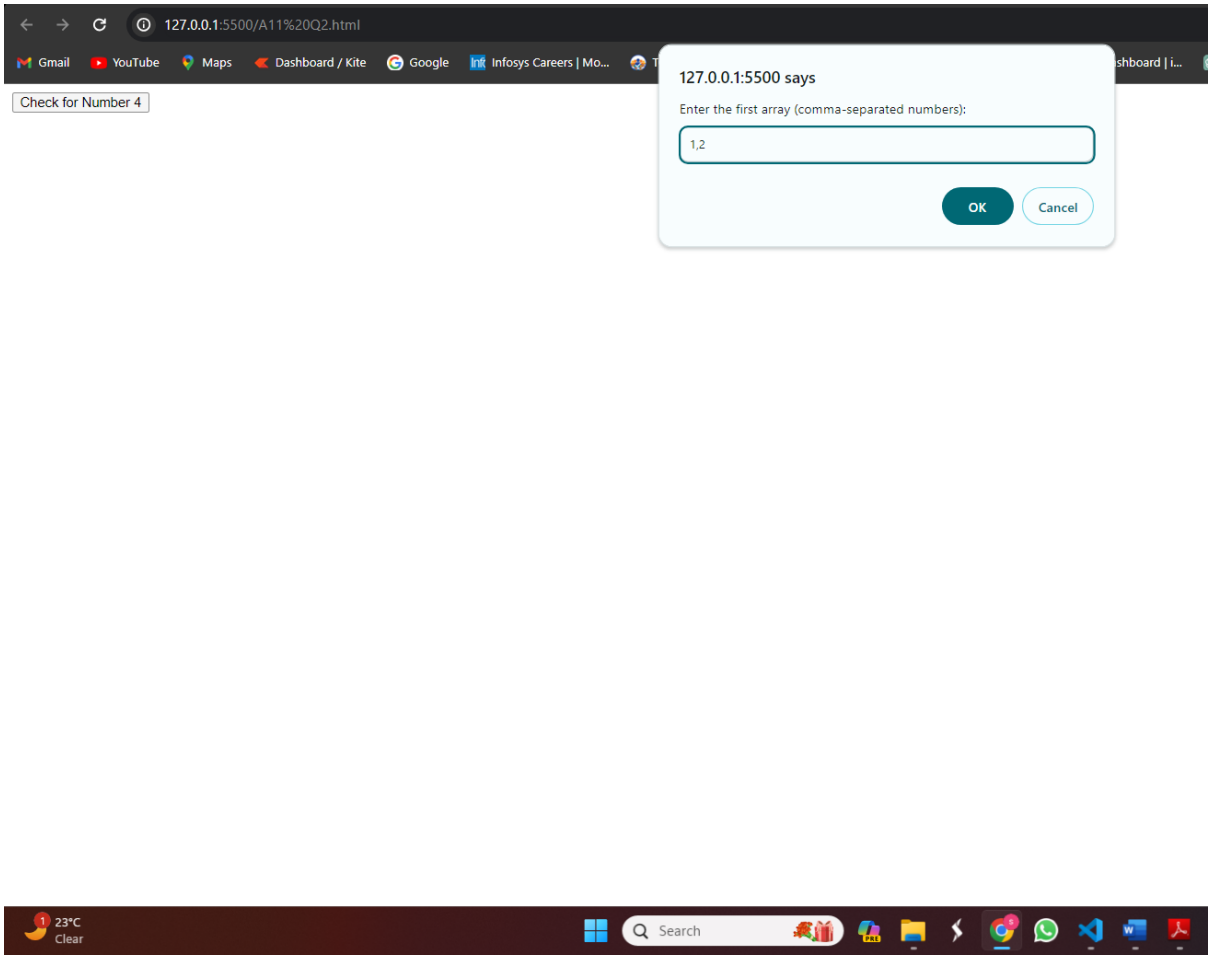
```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Check for Number 4</title>
<script>
function checkForNumber4() {
    // Get input arrays from the user
    const array1 = prompt("Enter the first array (comma-separated numbers):").split(",").map(Number);
    const array2 = prompt("Enter the second array (comma-separated numbers):").split(",").map(Number);

    // Check if number 4 exists in any of the arrays or both
    const existsInArray1 = array1.includes(4);
    const existsInArray2 = array2.includes(4);

    // Display results
    if (existsInArray1 && existsInArray2) {
        alert("Number 4 exists in both arrays.");
    } else if (existsInArray1) {
        alert("Number 4 exists in the first array.");
    } else if (existsInArray2) {
        alert("Number 4 exists in the second array.");
    } else {
        alert("Number 4 does not exist in either array.");
    }
```

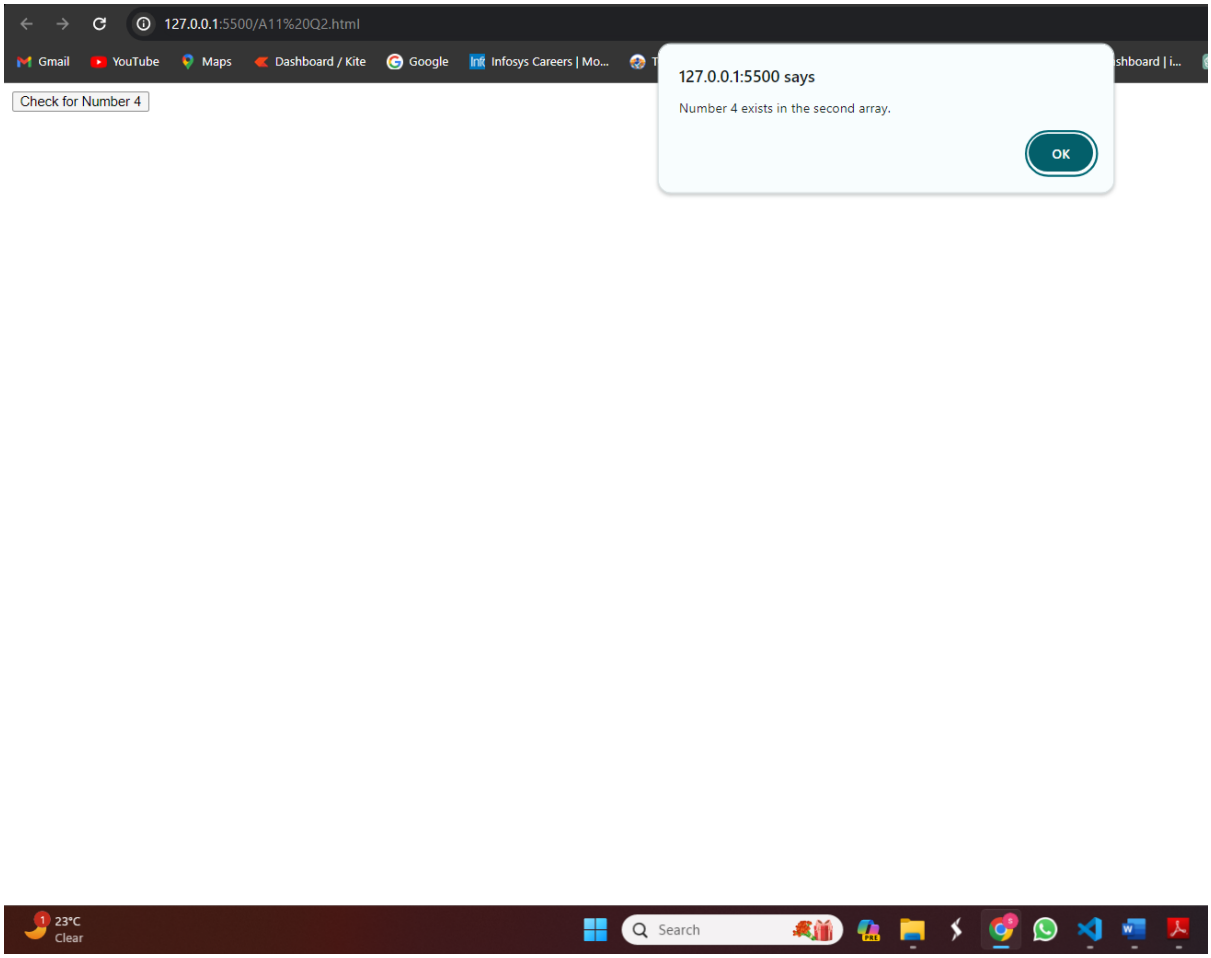
```
}
</script>
</head>
<body>
<button onclick="checkForNumber4()">Check for Number 4</button>
</body>
</html>
```

OUTPUT



Q. 3 Write a JavaScript program to flatten the array, ie, turns a deep array into a plain array.
Note: Do not use array.flat();


127.0.0.1:5500/A11%20Q2.html
Gmail
YouTube
Maps
Dashboard / Kite
Google
Infosys Careers | Mo...
Check for Number 4
127.0.0.1:5500 says
Enter the first array (comma-separated numbers):
1,2
OK
Cancel
23°C
Clear
Search



Q. 3 Write a JavaScript program to flatten the array, ie, turns a deep array into a plain array.
Note: Do not use array.flat();

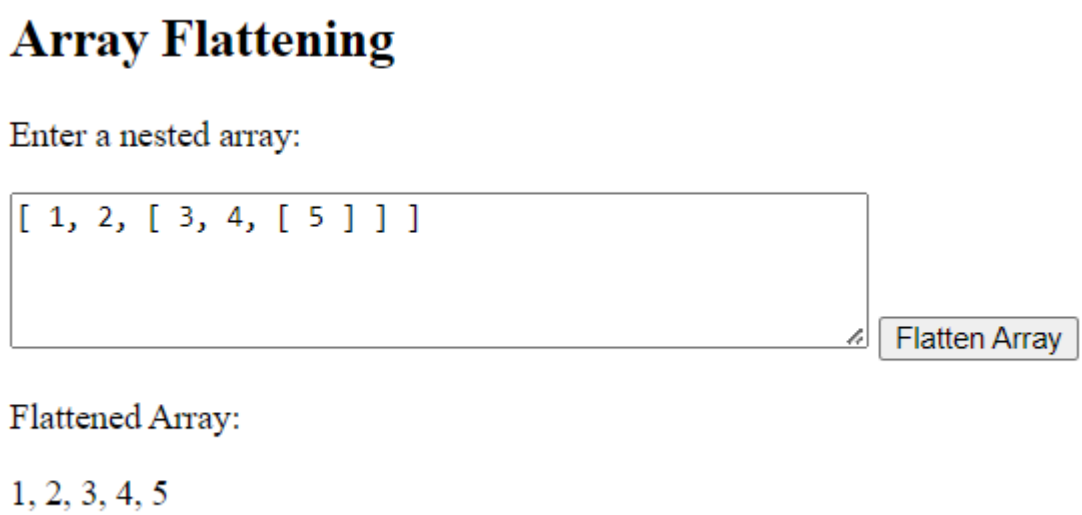
Ans:

```
<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

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

<title>Array Flattening</title>

<script>

function flattenArray(arr) {

    let flatArray = [];
```

```
    arr.forEach(item => {
        if (Array.isArray(item)) {
            flatArray = flatArray.concat(flattenArray(item));
        } else {
            flatArray.push(item);
        }
    });
    return flatArray;
}

function flattenAndDisplay() {
    const inputArray = document.getElementById("inputArray").value;
    try {
        const parsedArray = JSON.parse(inputArray);
        const flattenedArray = flattenArray(parsedArray);
        document.getElementById("result").innerHTML = flattenedArray.join(", ");
    } catch (error) {
        document.getElementById("result").innerHTML = "Invalid input. Please enter a valid
array.";
    }
}
</script>
</head>
<body>

<h2>Array Flattening</h2>

<p>Enter a nested array:</p>
<textarea id="inputArray" rows="4" cols="50"></textarea>

<button onclick="flattenAndDisplay()">Flatten Array</button>
```

```
<p>Flattened Array:</p>
<p id="result"></p>

</body>
</html>
```

OUTPUT



Q. 4 Write a JavaScript program to take an array as input from the user and:
a) Store all duplicate elements in a separate array
b) Remove the duplicate elements from the original array

ANS:

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Remove Duplicates</title>
<script>
function removeDuplicates() {
```

```
    const inputArray = document.getElementById("inputArray").value;
    try {
        const parsedArray = JSON.parse(inputArray);
        const uniqueArray = [];
        const duplicateArray = [];

        parsedArray.forEach(item => {
            if (!uniqueArray.includes(item)) {
                uniqueArray.push(item);
            } else {
                duplicateArray.push(item);
            }
        });

        document.getElementById("resultUnique").innerHTML = "Unique Array: " +
uniqueArray.join(", ");
        document.getElementById("resultDuplicate").innerHTML = "Duplicate Array: " +
duplicateArray.join(", ");
    } catch (error) {
        document.getElementById("resultUnique").innerHTML = "Invalid input. Please enter a
valid array.";
        document.getElementById("resultDuplicate").innerHTML = "";
    }
}
</script>
</head>
<body>

<h2>Remove Duplicates</h2>

<p>Enter an array:</p>
```

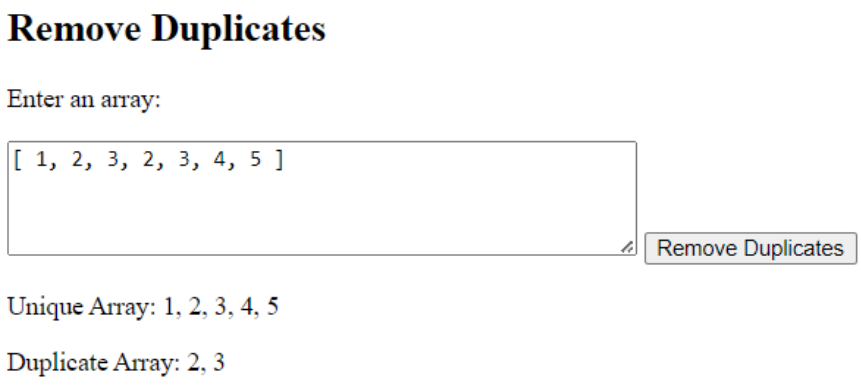
<textarea id="inputArray" rows="4" cols="50"></textarea>

<button onclick="removeDuplicates()">Remove Duplicates</button>

</body>

</html>

OUTPUT



Q.5 Debug the given JavaScript program and execute the correct code.

```
function thirdLargest(arr, arr_size)
{
/* There should be
at least three elements */
if (arr_size < 3)
{
document.write(" Invalid Input "); return;
}
let first = arr[0];
for (let i = 1;
i < arr_size ; i++)
if (arr[i] > first)
arr[i] = first;
let second = Number.MIN_VALUE; for (let i = 0;
i < arr_size ; i++)
if (arr[i] > first &&
arr[i] < second)
arr[i] = second;
let third = Number.MIN_VALUE; for (let i = 0;
```

```
i < arr_size ; i++)
if (arr[i] < third &&
arr[i] > second)
third = arr[i];
document.write("The third Largest " + "element is ", third); }
let arr = [12, 13, 1, 10, 34, 16]; let n = arr.length;
thirdLargest(arr, n);
```

ANS:

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Third Largest Element</title>
<script>
function thirdLargest(arr, arr_size) {
    /* There should be at least three elements */
    if (arr_size < 3) {
        document.write(" Invalid Input ");
        return;
    }
    let first = arr[0];
    for (let i = 1; i < arr_size; i++) {
        if (arr[i] > first) {
            first = arr[i];
        }
    }

    let second = Number.MIN_VALUE;
    for (let i = 0; i < arr_size; i++) {
        if (arr[i] < first) {
            second = Math.max(second, arr[i]);
        }
```

```
    }

    let third = Number.MIN_VALUE;
    for (let i = 0; i < arr_size; i++) {
        if (arr[i] < second) {
            third = Math.max(third, arr[i]);
        }
    }

    if (third === Number.MIN_VALUE) {
        document.write(" No third largest element exists ");
    } else {
        document.write("The third Largest element is " + third);
    }
}

let arr = [12, 13, 1, 10, 34, 16];
let n = arr.length;
thirdLargest(arr, n);
</script>
</head>
<body>
</body>
</html>
```

OUTPUT

The third Largest element is 13