

JavaScript

Q1. Create an event driven program to print a table of numbers from 5 to 15 and their squares and cubes in a webpage.

Solution:

```
<html>
  <head>
    <title>Numbers, Squares and Cubes</title>
  </head>
  <body>
    <h1>Squares and Cubes</h1>
    <table id='OtherData' border=1px, cellspacing=0px
cellpadding=5px>
      <tr>
        <th>Number</th>
        <th>Square</th>
        <th>Cube</th>
      </tr>
    </table>

    <script>
      const res = document.getElementById('OtherData');
      function generateSquare(x) {
        return x * x;
      }
      function generateCube(x) {
        return x * generateSquare(x);
      }
      let data;
      for (let i = 5; i <= 15; i++) {
        data = `<tr>
          <td>${i}</td>
          <td>${generateSquare(i)}</td>
          <td>${generateCube(i)}</td>
        </tr>`;
        res.innerHTML += data;
      }
    </script>

  </body>
</html>
```

Output:

When the page is loaded, the following page is seen:

Numbers, Squares and Cubes		
Number	Square	Cube
5	25	125
6	36	216
7	49	343
8	64	512
9	81	729
10	100	1000
11	121	1331
12	144	1728
13	169	2197
14	196	2744
15	225	3375

Q2. Write a program in JavaScript to add two numbers entered by the user in textboxes and print the sum in a webpage.

Solution:

```
<html>
  <head>
    <title>Addition</title>
  </head>

  <body>
    <table>
      <tr>
        <td>First Number</td>
        <td><input type='text' id='num1'></td>
      </tr>
      <tr>
        <td>Second Number</td>
        <td><input type='text' id='num2'></td>
      </tr>
      <tr>
        <td></td>
        <td><input type='button' value='Add' onclick='sum()'></td>
      </tr>
    </table>
    <p id='result'></p>

    <script>
      function sum() {
        if (document.getElementById('num1').value == '') {
```

```

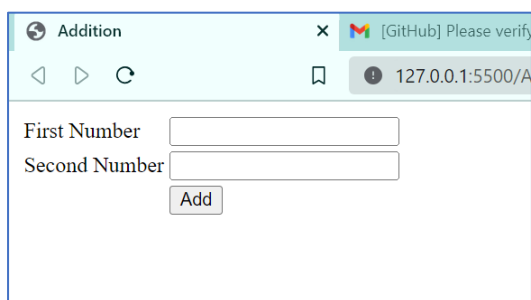
        alert('First value cannot be empty!');
        document.getElementById('num1').focus();
    }
    else if (isNaN(document.getElementById('num1').value)) {
        alert('First value is not a number!');
        document.getElementById('num1').value = '';
        document.getElementById('num1').focus();
    }
    else if (document.getElementById('num2').value == '') {
        alert('Second value cannot be empty!');
        document.getElementById('num2').focus();
    }
    else if (isNaN(document.getElementById('num2').value)) {
        alert('Second value is not a number!');
        document.getElementById('num2').value = '';
        document.getElementById('num2').focus();
    }
    else {
        let a = Number(document.getElementById('num1').value);
        let b = Number(document.getElementById('num2').value);
        let sum = a + b;
        document.getElementById('result').innerHTML = 'Sum = ' +
sum;
    }
}
</script>

</body>
</html>

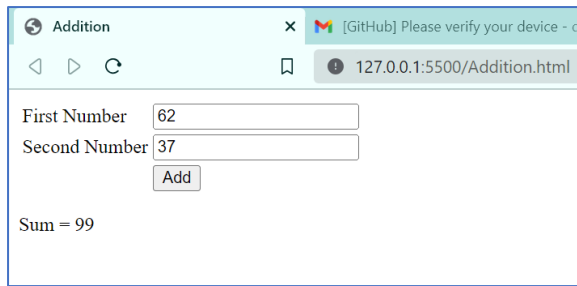
```

Output:

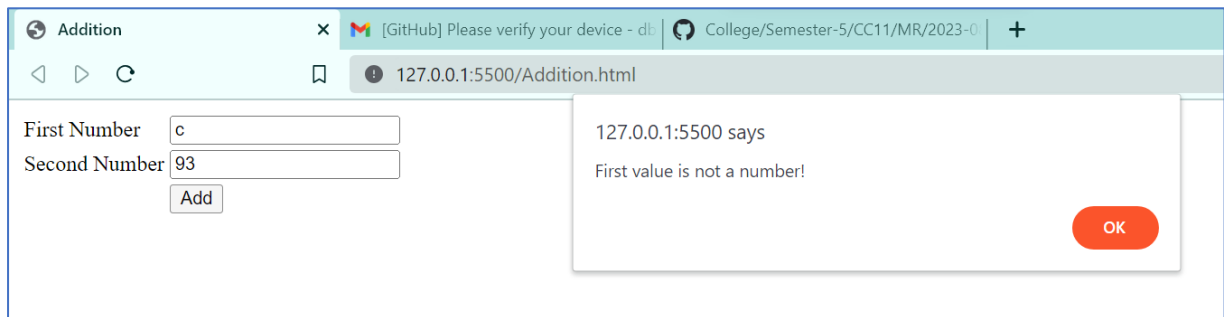
Case 1: When page is loaded for the first time, the following page is seen:



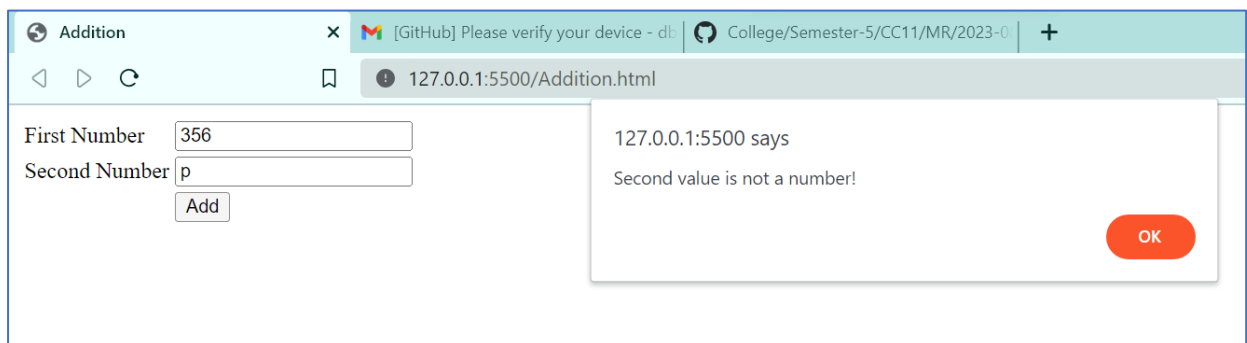
Case 2: When two numbers are entered and the "Add" button is clicked, we get the following:



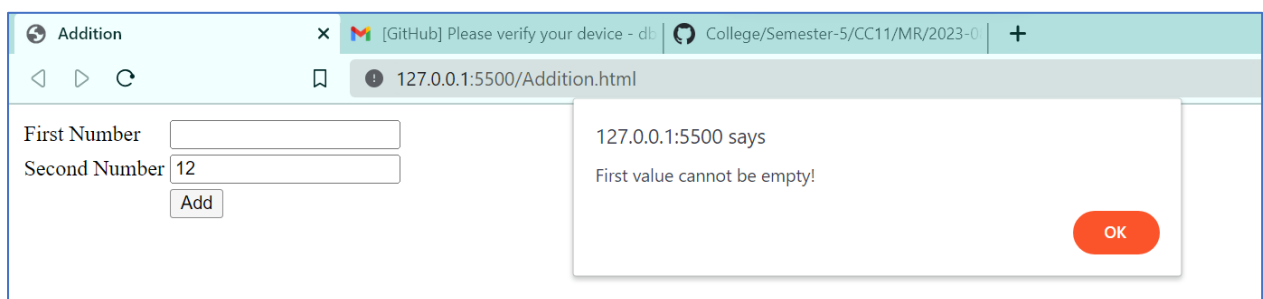
Case 3: When the first value is not a number and the "Add" button is clicked, we get the following alert message:



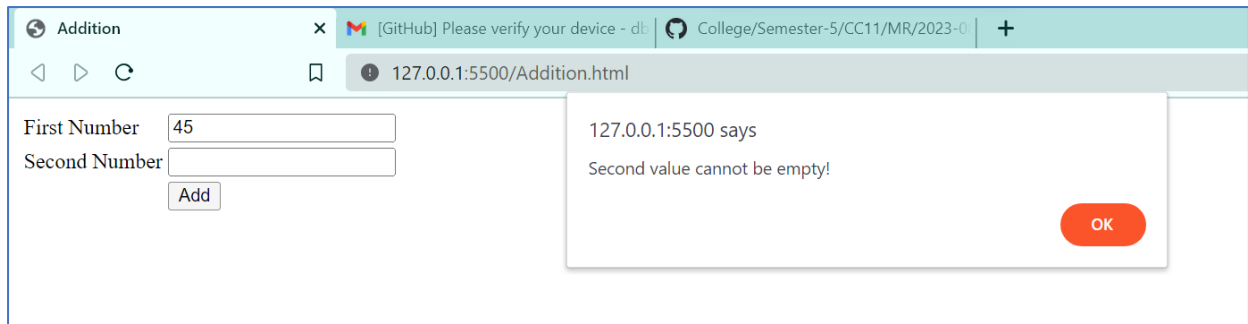
Case 4: When the second value is not a number and the "Add" button is clicked, we get the following alert message:



Case 5: When the first value is empty, we get the following alert message:



Case 6: When the second value is empty, we get the following alert message:



Q3. Create an event driven program to enter a list of positive numbers terminated by zero. Find the sum and average of these numbers.

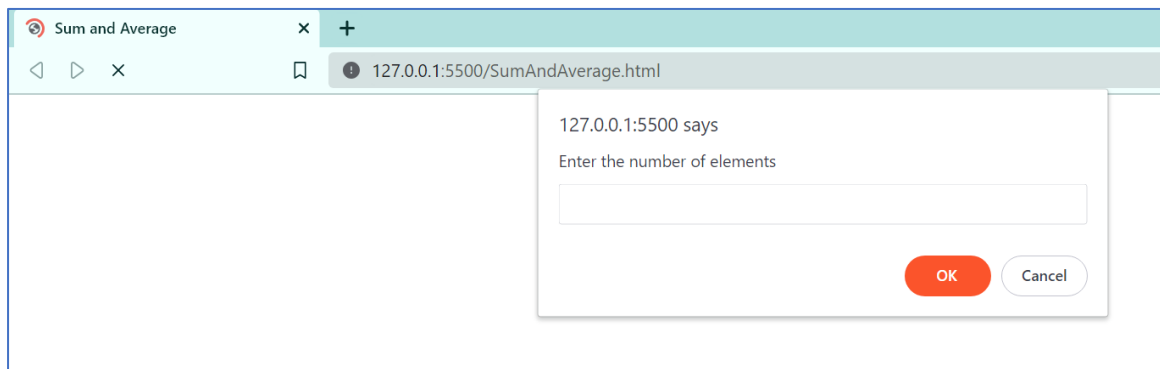
Solution:

```
<html>
<head>
  <title>Sum and Average</title>
</head>
<body>
  <h1>Sum and Average of numbers terminating with 0</h1>
  <p id="result"></p>
  <script>
    let numele = 0;
    while (true) {
      numele = Number(prompt("Enter the number of elements"));
      if (isNaN(numele) || numele < 0) {
        alert('Invalid input!');
      }
      else {
        break;
      }
    }
    let sum = 0, avg = 0;
    for (let i = 0; i < numele; i++) {
      let x = prompt("Enter a positive number terminating with
0:");
      if (isNaN(x) || Number(x) < 0 || Number(x) % 10 != 0) {
        alert("Invalid entry!");
        i--;
      }
      else {
        sum += Number(x);
      }
    }
    avg = sum / numele;
    document.getElementById('result').innerHTML =
      "Sum = " + sum + "<br>" +
      "Average = " + avg;
```

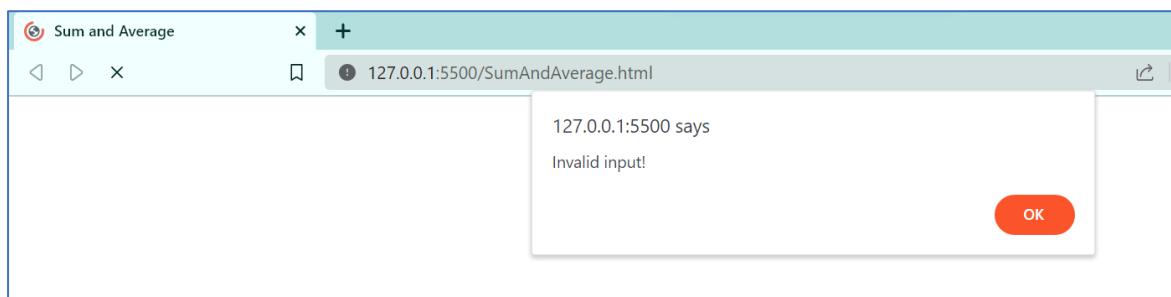
```
</script>
</body>
</html>
```

Output:

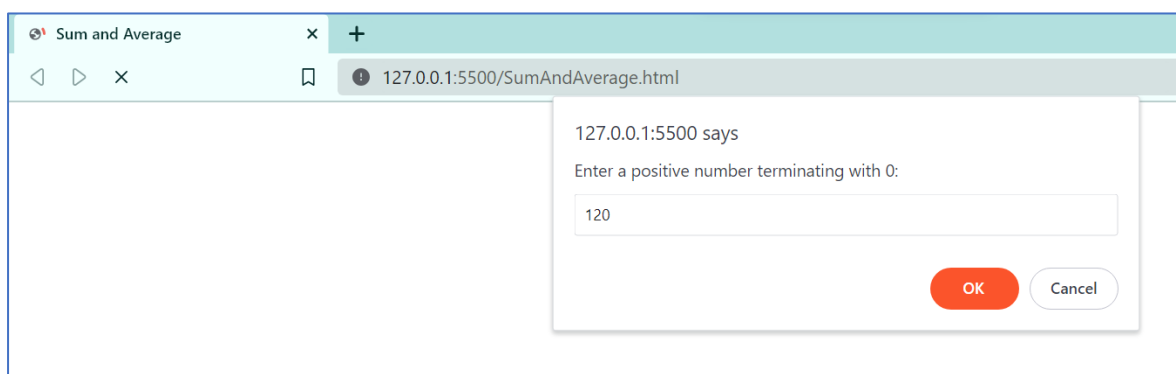
Case 1: When the page is loaded for the first time, the following message is seen:



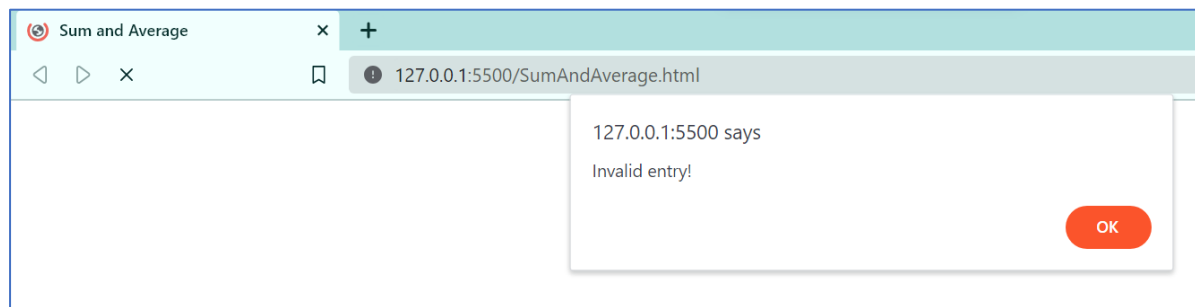
Case 2: When a negative number or non-number is entered, the following alert is shown:



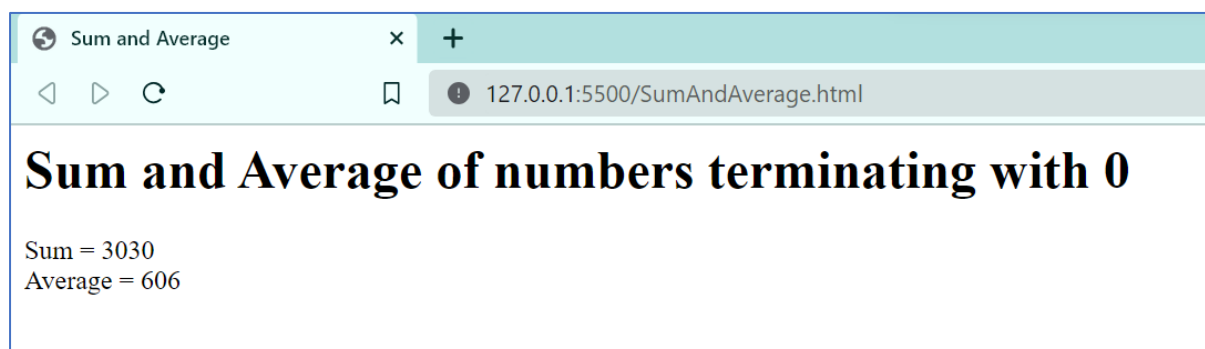
Case 3: The prompt to enter a number ending with 0 is shown as follows:



Case 4: When an invalid number is entered, the following alert is shown:



Case 5: When all numbers have been entered, the following page is shown:



Q4. Create an event driven program to enter a list of positive numbers and stop inputting when a zero is entered. Find the sum and average of these numbers.

Solution:

```
<html>
  <head>
    <title>Sum and Average</title>
  </head>
  <body>
    <h1>Sum and Average of numbers, part 2</h1>
    <p id="result"></p>
    <script>
      let sum = 0, avg = 0, numele = 0;
      while (true) {
        let x = Number(prompt("Enter a positive number, press 0 to
quit:"));
        if (isNaN(x) || Number(x) < 0) {
          alert("Invalid entry!");
        }
        else if (x == 0) {
          break;
        }
      }
    </script>
  </body>
</html>
```

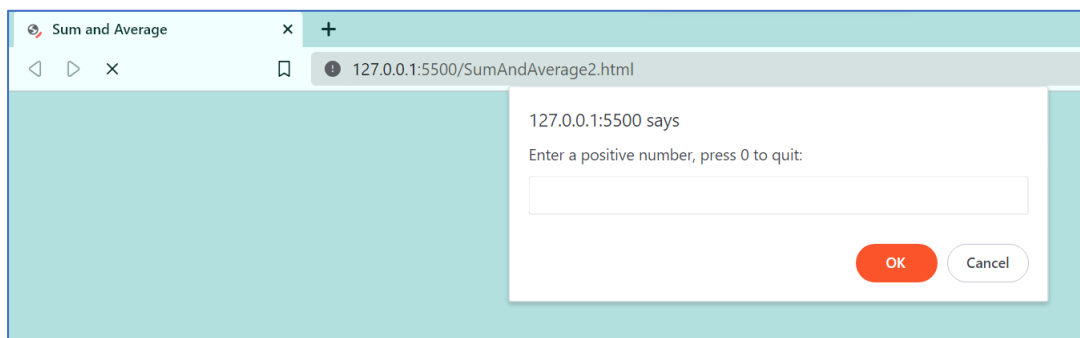
```

        else {
            sum += Number(x);
            numele++;
        }
    }
    avg = sum / numele;
    document.getElementById('result').innerHTML =
        "Sum = " + sum + "<br>" +
        "Average = " + avg;
</script>
</body>
</html>

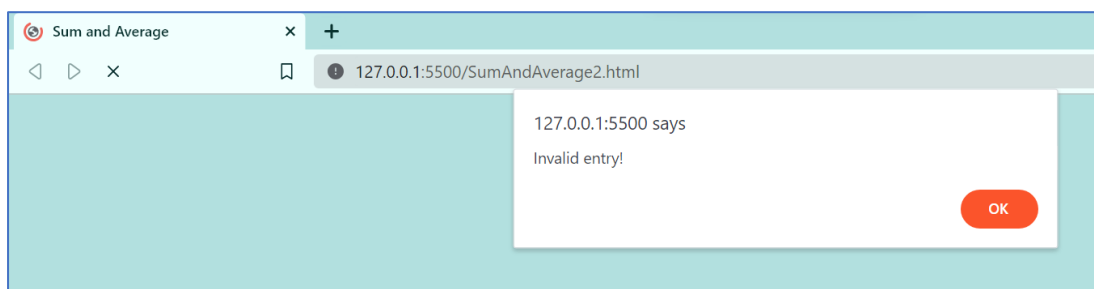
```

Output:

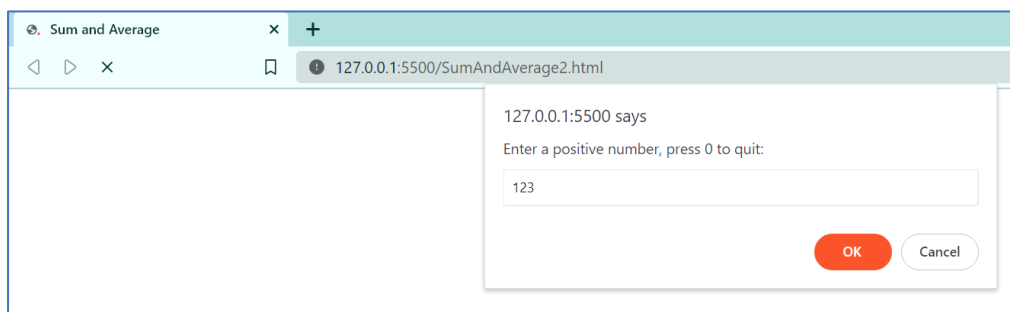
Case 1: When the page is loaded for the first time, the following page is seen:



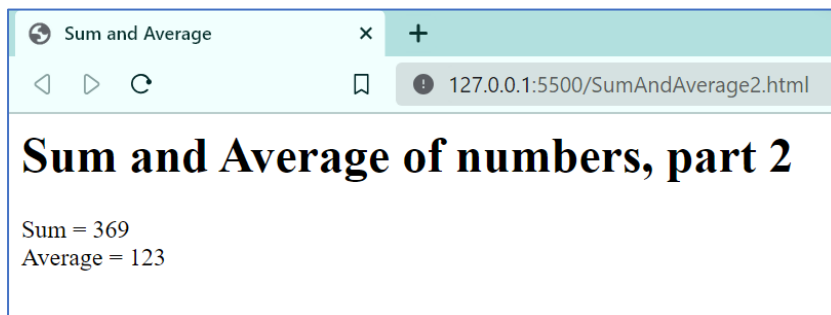
Case 2: On entering a non-number, the following alert is shown:



Case 3: The following page is shown when the user is entering numbers:



Case 4: When the user enters 0 after entering few numbers, the following page is shown:



Q5. Create an event driven program to read n numbers and count the number of negative numbers, positive numbers and zeros and print the result.

Solution:

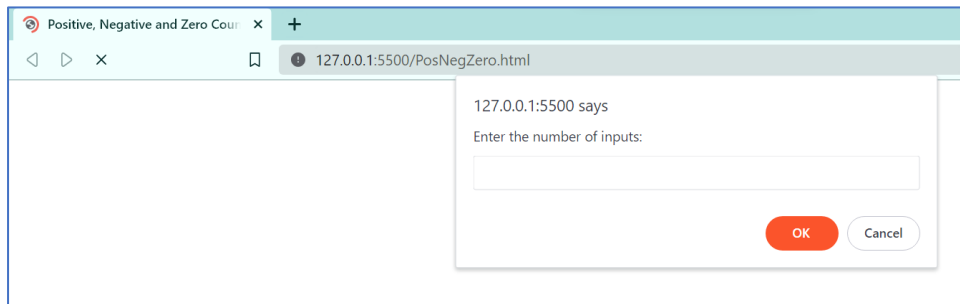
```
<html>
  <head>
    <title>Positive, Negative and Zero Count</title>
  </head>

  <body>
    <h1>Count number of Positive, Negative, and Zeroes</h1>
    <p id='Positive'>Number of positive numbers = </p>
    <p id='Negative'>Number of negative numbers = </p>
    <p id='Zeroes'>Number of zeroes = </p>

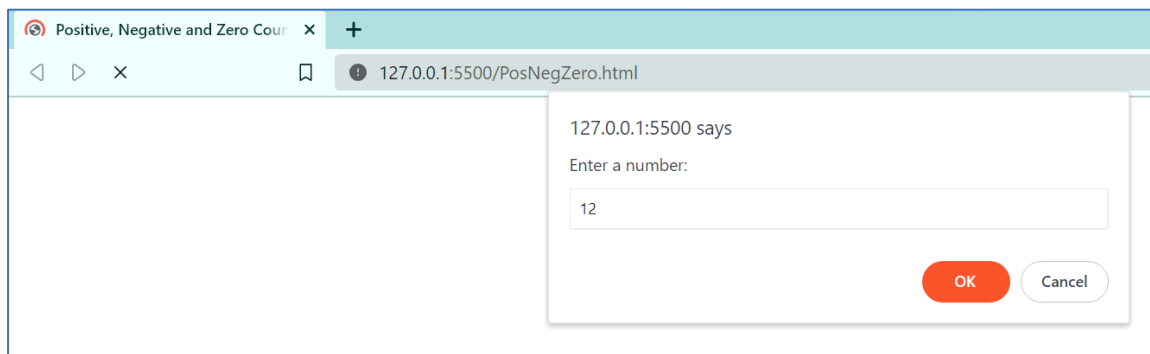
    <script>
      let n = prompt('Enter the number of inputs:');
      let pos = 0, neg = 0, z = 0;
      while (n-->0) {
        let k = prompt('Enter a number:');
        if (isNaN(k)) {
          alert('Wrong input, Please enter again!');
          n++;
        }
        else {
          if (k > 0) pos++;
          else if (k < 0) neg++;
          else z++;
        }
      }
      document.getElementById('Positive').innerHTML += pos;
      document.getElementById('Negative').innerHTML += neg;
      document.getElementById('Zeroes').innerHTML += z;
    </script>
  </body>
</html>
```

Output:

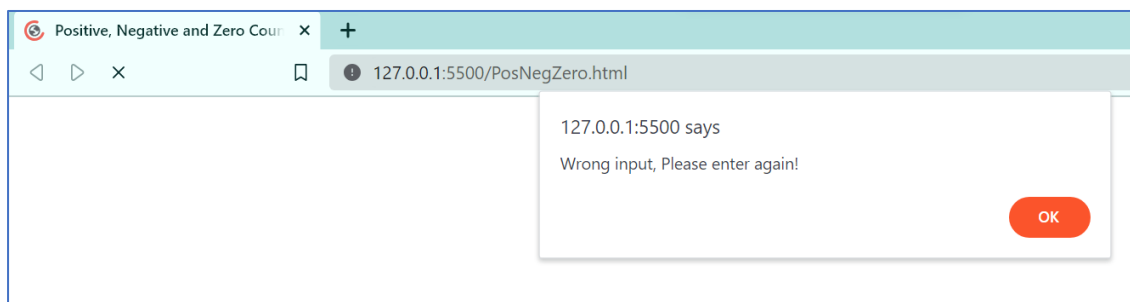
Case 1: When the page is first loaded, the following page is seen:



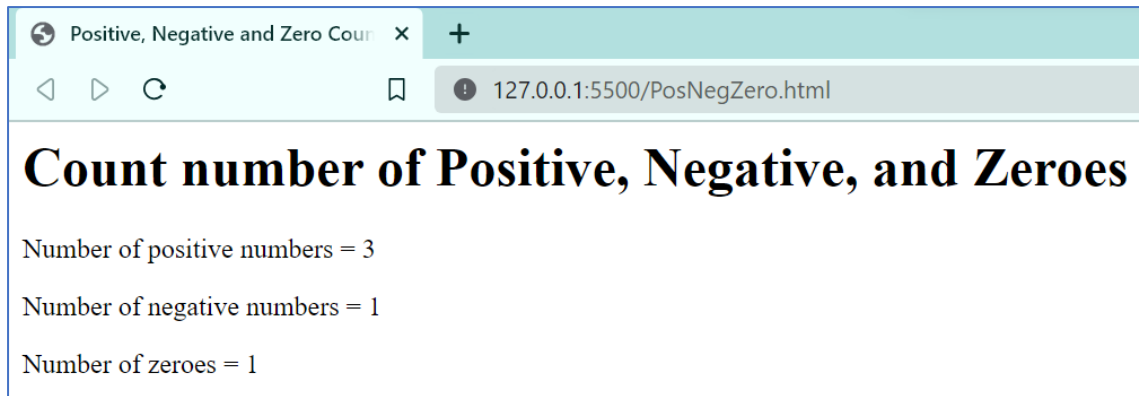
Case 2: After the number of inputs is entered, the following page is shown to take the inputs:



Case 3: In case an invalid input is entered, the following page is shown:



Case 4: After all the inputs have been entered, finally the following page is shown:



Q6. Write a program in JavaScript to check whether a string is palindrome or not. The string must be in uppercase.

Solution:

```
<html>
  <head>
    <title>Palindrome</title>
  </head>

  <body>
    <h1>Palindrome Checker</h1>
    <p id='InputString'>Input string = </p>
    <p id='PalindromeCheck'></p>

    <script>
      let str = prompt('Enter a string');
      str = str.toUpperCase();
      document.getElementById('InputString').innerHTML += str;
      if (isPalindrome(str)) {
        console.log('Hello');
        document.getElementById('PalindromeCheck').innerHTML = 'The
entered string is palindrome.';
      }
      else {
        document.getElementById('PalindromeCheck').innerHTML = 'The
entered string is not palindrome.';
      }

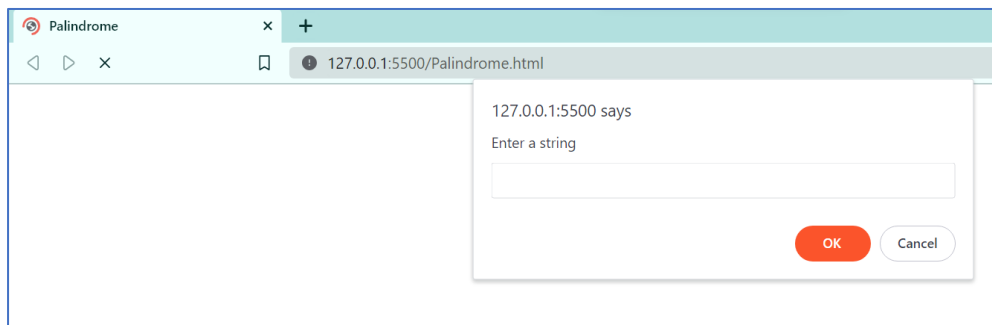
      function isPalindrome(s) {
        let n = s.length;
        for (let i = 0; i < n / 2; i++) {
          if (s[i] !== s[n - 1 - i]) {
            return false;
          }
        }
        return true;
      }
    </script>
  </body>
</html>
```

```
</script>

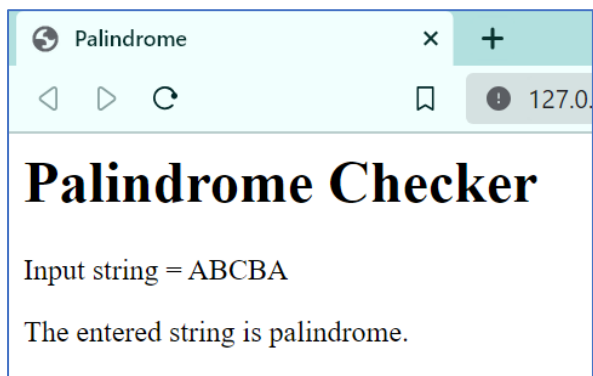
</body>
</html>
```

Output:

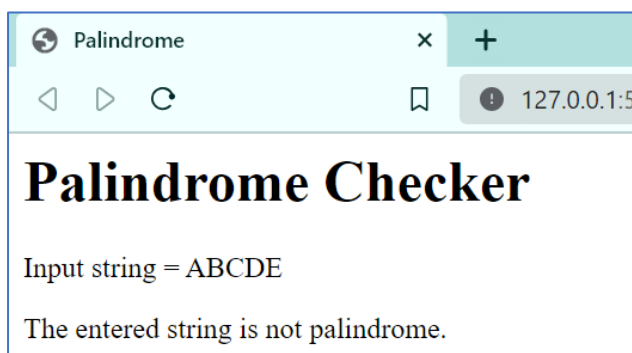
Case 1: When the page is first loaded, the following page is seen:



Case 2: On entering a palindrome string, the following page is shown:



Case 3: On entering a non-palindrome string, the following page is shown:



Q7. Write a program in JavaScript to enter a string and replace each occurrence of a word with another word (entered by the user) without using replace method.

Solution:

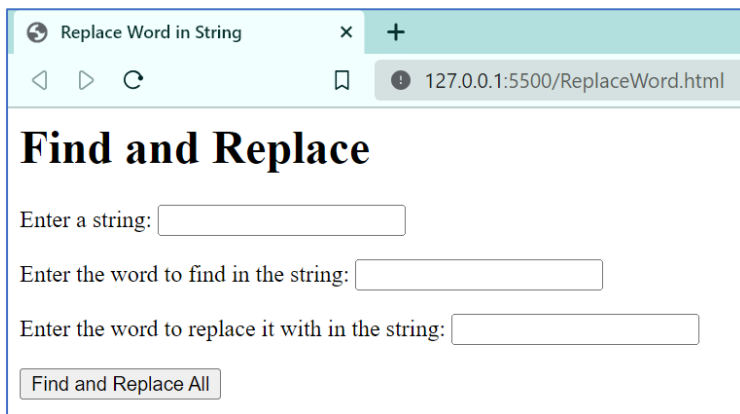
```
<html>
  <head>
    <title>Replace Word in String</title>
  </head>

  <body>
    <h1>Find and Replace</h1>
    <p>Enter a string: <input type='text' id='inp'></p>
    <p>Enter the word to find in the string: <input type='text'
id='word'></p>
    <p>Enter the word to replace it with in the string: <input
type='text' id='replace'></p>
    <input type='button' value='Find and Replace All'
onclick='find_and_replace()'>
    <p id='output'></p>

    <script>
      function find_and_replace() {
        let words = document.getElementById('inp').value.split(' ');
        for (let i = 0; i < words.length; i++) {
          if (words[i] == document.getElementById('word').value) {
            words[i] = document.getElementById('replace').value;
          }
        }
        document.getElementById('output').innerHTML += words.join('
');
      }
    </script>
  </body>
</html>
```

Output:

Case 1: When the page is first loaded, the following page is seen:



Replace Word in String

127.0.0.1:5500/ReplaceWord.html

Find and Replace

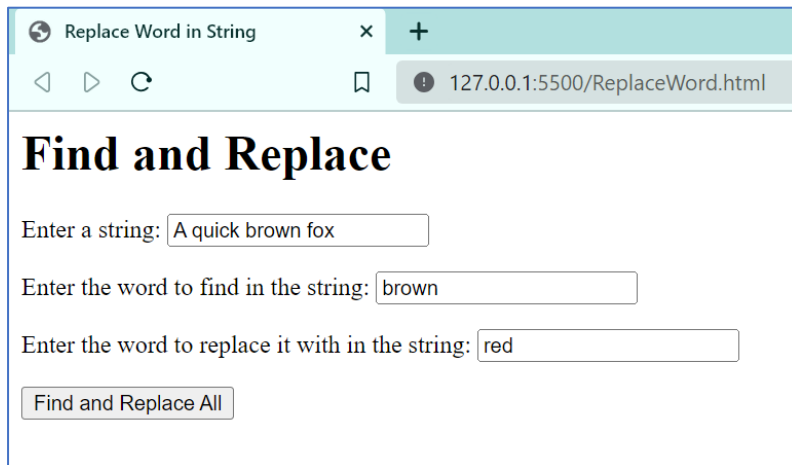
Enter a string:

Enter the word to find in the string:

Enter the word to replace it with in the string:

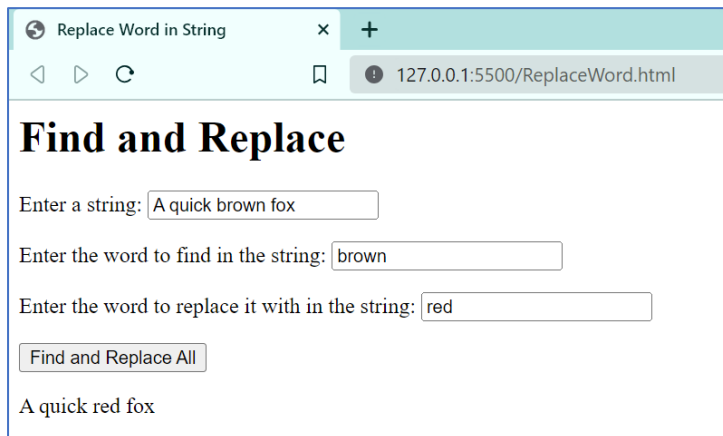
Find and Replace All

Case 2: After entering the inputs and before pressing the 'Find and Replace All' button, the following page is seen:



The screenshot shows a web browser window with the title 'Replace Word in String'. The address bar shows '127.0.0.1:5500/ReplaceWord.html'. The page has a heading 'Find and Replace'. Below the heading, there are three input fields: 'Enter a string:' with the value 'A quick brown fox', 'Enter the word to find in the string:' with the value 'brown', and 'Enter the word to replace it with in the string:' with the value 'red'. At the bottom, there is a button labeled 'Find and Replace All'.

Case 3: After the button is pressed, the following output is shown:



The screenshot shows the same web browser window as Case 2, but now the output 'A quick red fox' is displayed below the 'Find and Replace All' button. The input fields and the button remain the same.

Q8. A person deposits Rs 1000 in a fixed account yielding 5% interest. Compute the amount in the account at the end of each year for n years.

Solution:

```
<html>
  <head>
    <title>Interest Calculation</title>
  </head>
  <body>
    <h1>Interest Calculation</h1>
    Original amount = Rs. 1000/-
    <table>
      <tr>
        <td>Enter the number of years:</td>
        <td><input type="Number" id="years"></td>
      </tr>
```

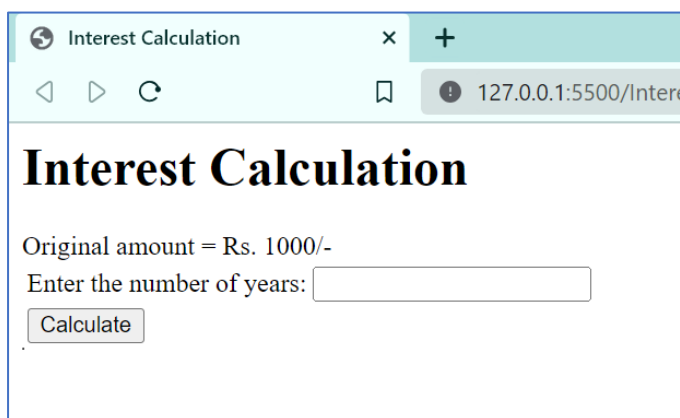
```

        <tr>
            <td><input type="button" value="Calculate"
onclick="calc()"></td>
        </tr>
    </table>
    <table border=1px cellpadding=2px cellspacing=0px
id="result"></table>
    <script>
        let done = false;
        function calc() {
            if (done) return;
            var years;
            let amount;
            if (document.getElementById("years").value <= 0) {
                alert("Please enter a valid value");
            }
            else {
                done = true;
                years = Number(document.getElementById("years").value);
                for(let i = 1; i <= years; i++) {
                    let ans = 1000 * ((1 + (5 / 100)) ** i);
                    ans = ans.toFixed(2);
                    console.log(ans);
                    let a = `<tr><td>${i}</td><td>${ans}</td></tr>`;
                    document.getElementById("result").innerHTML += a;
                }
            }
        }
    </script>
</body>
</html>

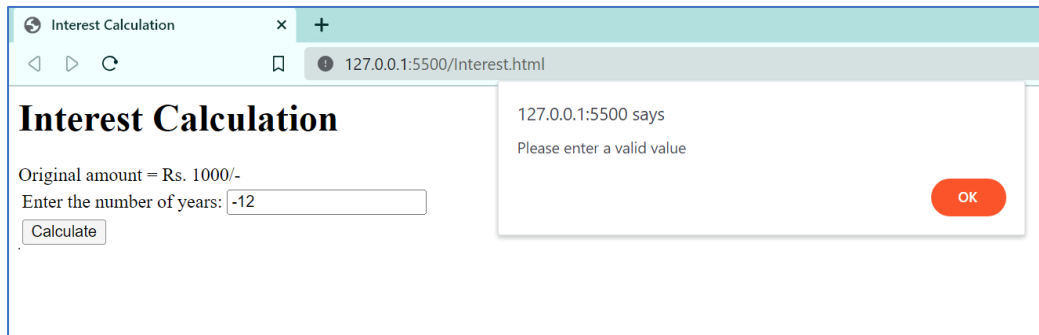
```

Output:

Case 1: When the page is first loaded, the following page is seen:



Case 2: On entering an invalid value, and pressing the 'Calculate' button, the following page is seen:



Case 3: On entering a valid value and pressing the 'Calculate' button, the following page is seen:

