Experiment No. 3

Problem stmt1:

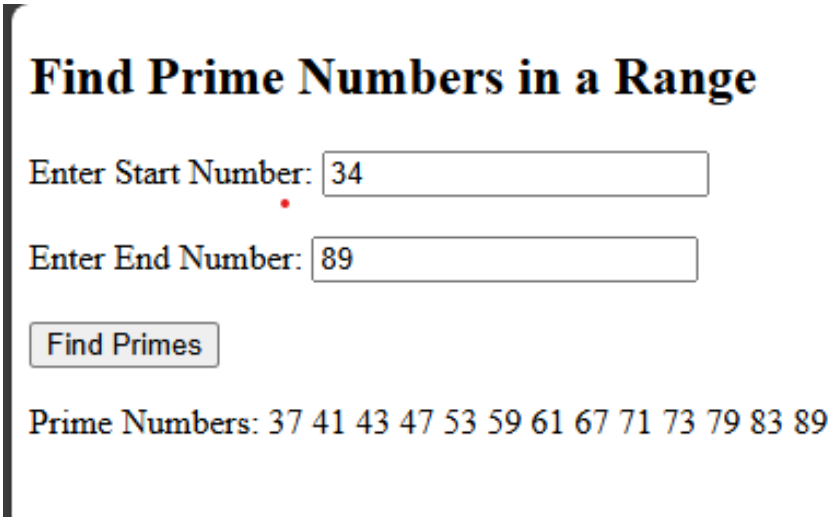
Write a JavaScript program to demonstrate the function (for code reusability). Ask user to enter two numbers and print all prime numbers between range of numbers entered by user.

Code:

```
<!DOCTYPE html>
<html>
<head>
  <title>Prime Numbers in a Range</title>
  <script>
    function isPrime(num) {
      if (num < 2) return false;
      for (let i = 2; i <= Math.sqrt(num); i++) {
        if (num % i === 0) return false;
      }
      return true;
    }

    function findPrimes() {
      let start = parseInt(document.getElementById("start").value);
      let end = parseInt(document.getElementById("end").value);
      let result = "";

      for (let i = start; i <= end; i++) {
        if (isPrime(i)) {
          result += i + " ";
        }
      }
      document.getElementById("output").innerText = "Prime Numbers: " + result;
    }
  </script>
</head>
<body>
  <h2>Find Prime Numbers in a Range</h2>
  <label>Enter Start Number:</label>
  <input type="number" id="start"><br><br>
  <label>Enter End Number:</label>
  <input type="number" id="end"><br><br>
  <button onclick="findPrimes()">Find Primes</button>
  <p id="output"></p>
</body>
```

```
</html>
```

Output:



Problem stmt2:

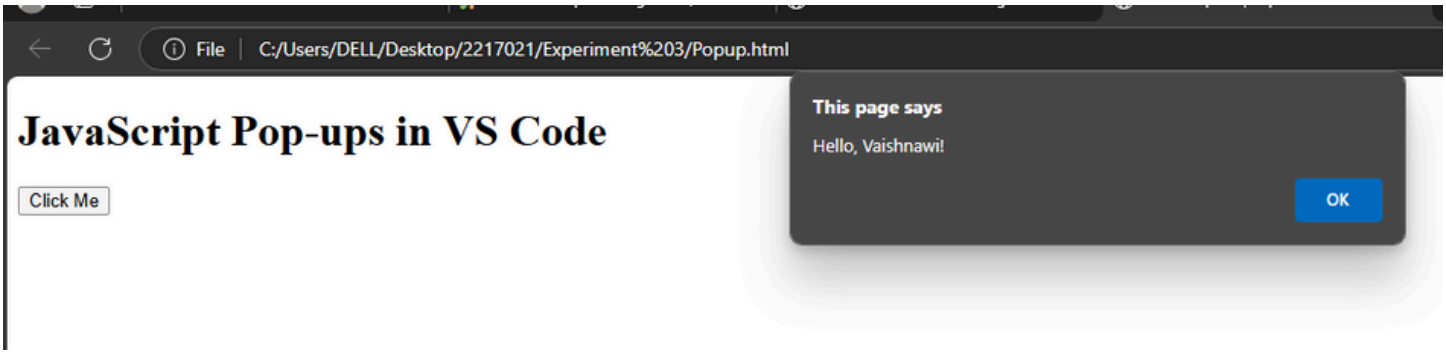
Use JavaScript to display pop up boxes (alert box, an alert box with line breaks, confirm box, prompt box)

Code:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>JavaScript Pop-ups</title>
</head>
<body>

  <h1>JavaScript Pop-ups in VS Code</h1>
  <button onclick="showAlerts()">Click Me</button>

  <script>
    function showAlerts() {
      // 1. Simple Alert Box
      alert("This is a simple alert box!");

      // 2. Alert Box with Line Breaks
      alert("This is an alert box with\nmultiple lines\nusing newline characters!");

      // 3. Confirm Box
      let userConfirmation = confirm("Do you want to proceed?");
      if (userConfirmation) {
        alert("You pressed OK!");
      } else {
        alert("You pressed Cancel!");
      }

      // 4. Prompt Box
```

```
        let userInput = prompt("Please enter your name:", "Your Name");
        if (userInput !== null && userInput !== "") {
            alert("Hello, " + userInput + "!");
        } else {
            alert("No input provided.");
        }
    }
</script>

</body>
</html>
```

Output:



Problem stmt3:

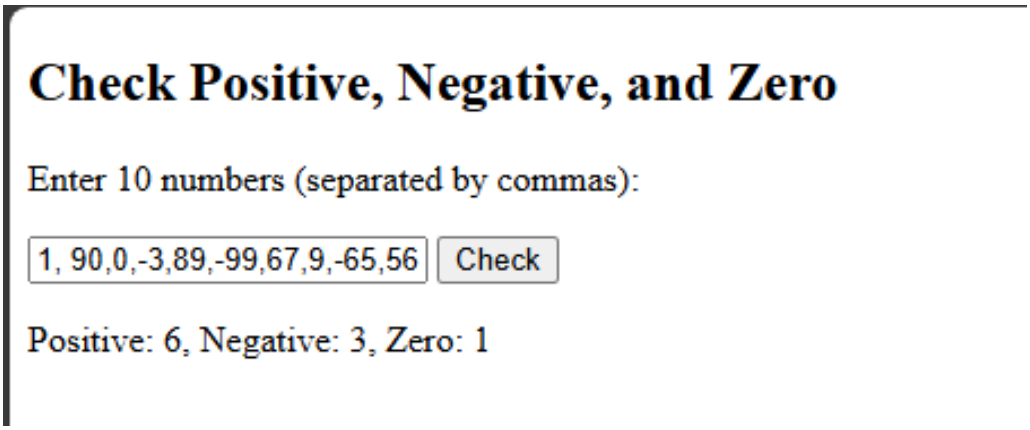
Write a JavaScript code to accept 10 numbers and check how many are +ive, -ive, and zero.

Code:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Count Positive, Negative & Zero</title>
</head>
<body>

    <h2>Check Positive, Negative, and Zero</h2>
    <p>Enter 10 numbers (separated by commas):</p>
    <input type="text" id="numbers" placeholder="e.g. 1, -2, 0, 5, -3, 7, 0, 8, -1, 4">
    <button onclick="checkNumbers()">Check</button>

    <p id="result"></p>

    <script>
        function checkNumbers() {
            let input = document.getElementById("numbers").value;
            let numArray = input.split(',').map(num => parseInt(num.trim()));

            if (numArray.length !== 10 || numArray.some(isNaN)) {
                document.getElementById("result").innerHTML = "Please enter exactly 10 valid numbers.";
                return;
```

```
    }
    let positiveCount = 0, negativeCount = 0, zeroCount = 0;
    numArray.forEach(num => {
      if (num > 0) {
        positiveCount++;
      } else if (num < 0) {
        negativeCount++;
      } else {
        zeroCount++;
      }
    });
    document.getElementById("result").innerHTML =
      `Positive: ${positiveCount}, Negative: ${negativeCount}, Zero: ${zeroCount}`;
  }
</script>
</body>
</html>
```

Output:



Problem stmt4:

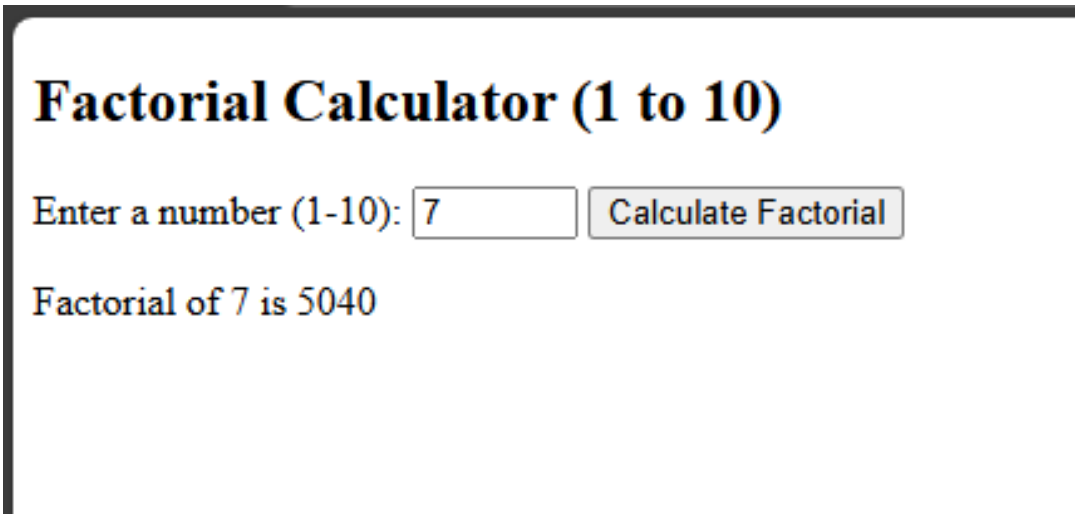
Write a Program in JavaScript to find the factorial of a number between 1 to 10

Code:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Factorial Calculator</title>
</head>
<body>
  <h2>Factorial Calculator (1 to 10)</h2>
  <label for="number">Enter a number (1-10):</label>
  <input type="number" id="number" min="1" max="10">
```

```
  <button onclick="calculateFactorial()">Calculate Factorial</button>
  <p id="result"></p>
  <script>
    function factorial(n) {
      if (n === 0 || n === 1) return 1;
      return n * factorial(n - 1);
    }
    function calculateFactorial() {
      let num = document.getElementById("number").value;
      num = parseInt(num);
      if (num >= 1 && num <= 10) {
        let fact = factorial(num);
        document.getElementById("result").innerHTML = `Factorial of ${num} is ${fact}`;
      } else {
        document.getElementById("result").innerHTML = "Please enter a number between 1 and 10.";
      }
    }
  </script>
</body>
</html>
```

Output:



Problem stmt5:

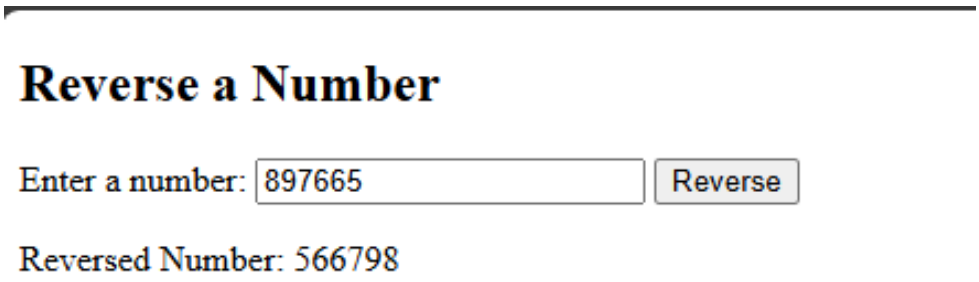
Write a Program in JavaScript to find the reverse of a digit.

Code:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Reverse a Number</title>
</head>
```

```
<body>

  <h2>Reverse a Number</h2>
  <label for="number">Enter a number:</label>
  <input type="number" id="number">
  <button onclick="reverseNumber()">Reverse</button>

  <p id="result"></p>

  <script>
    function reverseNumber() {
      let num = document.getElementById("number").value;

      // Convert number to string, split into array, reverse it, and join it back
      let reversedNum = num.toString().split('').reverse().join('');

      document.getElementById("result").innerHTML = `Reversed Number: ${reversedNum}`;
    }
  </script>

</body>
</html>
```

Output:



Problem stmt6:

Create the registration page and Write JavaScript to validate the following fields of the Registration page.

1. First Name (Name should contains alphabets and the length should not be less than 6 characters).

2. Password (Password should not be less than 6 characters).

3. E-mail id (should not contain any invalid and must follow the standard pattern name@domain.com).Mobile Number (Phone number should contain 10 digits only).

4. Last Name and Address (should not be Empty).

Code:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
```

```
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Registration Page</title>
  <script>
    function validateForm() {
      let firstName = document.getElementById("firstName").value;
      let lastName = document.getElementById("lastName").value;
      let address = document.getElementById("address").value;
      let password = document.getElementById("password").value;
      let email = document.getElementById("email").value;
      let mobile = document.getElementById("mobile").value;
      let emailPattern = /^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$/;
      let mobilePattern = /^\d{10}$/;

      if (!/^[a-zA-Z]{6,}$/.test(firstName)) {
        alert("First Name should contain only alphabets and be at least 6 characters long.");
        return false;
      }
      if (lastName.trim() === "") {
        alert("Last Name should not be empty.");
        return false;
      }
      if (address.trim() === "") {
        alert("Address should not be empty.");
        return false;
      }
      if (password.length < 6) {
        alert("Password should be at least 6 characters long.");
        return false;
      }
      if (!emailPattern.test(email)) {
        alert("Invalid email format. Example: name@domain.com");
        return false;
      }
      if (!mobilePattern.test(mobile)) {
        alert("Mobile number should contain exactly 10 digits.");
        return false;
      }
      alert("Registration successful!");
      return true;
    }
  </script>
</head>
<body>
  <h2>Registration Form</h2>
```

```
  <form onsubmit="return validateForm()">
    <label for="firstName">First Name:</label>
    <input type="text" id="firstName" name="firstName" required>
    <br>
    <label for="lastName">Last Name:</label>
    <input type="text" id="lastName" name="lastName" required>
    <br>
    <label for="address">Address:</label>
    <input type="text" id="address" name="address" required>
    <br>
    <label for="password">Password:</label>
    <input type="password" id="password" name="password" required>
    <br>
    <label for="email">Email:</label>
    <input type="email" id="email" name="email" required>
    <br>
    <label for="mobile">Mobile Number:</label>
    <input type="text" id="mobile" name="mobile" required>
    <br>
    <button type="submit">Register</button>
  </form>
</body>
</html>
```

Output: