IP Assignment 01

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CSE-B

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1. Develop a script that will determine whether a department-store customer has exceeded the credit limit on a charge account. For each customer, the following facts are available:
   a) Account number
   b) Balance at the beginning of the month
   c) Total of all items charged by this customer this month
   d) Total of all credits applied to this customer's account this month
   e) Allowed credit limit

   The script should input each of these facts from a prompt dialog as an integer, calculate the new balance (= beginning balance + charges – credits), display the new balance and determine whether the new balance exceeds the customer's credit limit. For customers whose credit limit is exceeded, the script should output HTML text that displays the message "Credit limit exceeded."

```
<!DOCTYPE html>
<html>
<head>
  <title>Credit Limit Checker</title>
</head>
<body>
  <script>
    let accountNumber = prompt("Enter account number:");
    let balance = parseInt(prompt("Enter beginning balance:"));
    let charges = parseInt(prompt("Enter total charges for the month:"));
    let credits = parseInt(prompt("Enter total credits for the month:"));
    let creditLimit = parseInt(prompt("Enter allowed credit limit:"));

    let newBalance = balance + charges - credits;
    document.write(`<h3>Account Number: ${accountNumber}</h3>`);
    document.write(`<p>New Balance: ${newBalance}</p>`);

    if (newBalance > creditLimit) {
      document.write("<p style='color:red;'>Credit limit exceeded</p>");
    } else {
      document.write("<p>Credit limit not exceeded</p>");
    }
  </script>
</body>
</html>
```

2. A company wants to transmit data over the telephone, but it's concerned that its phones may be tapped. All of its data is transmitted as four-digit integers. It has asked you to write a script that will encrypt its data so that the data may be transmitted more securely. Your script should read a four-digit integer entered by the user in a prompt dialog and encrypt it as follows: Replace each digit by (the sum of that digit plus 7) modulus 10. Then swap the first digit with the third, and swap the second digit with the fourth. Then output HTML text that displays the encrypted integer.

```
<!DOCTYPE html>
<html>
<head>
  <title>Data Encryption</title>
</head>
<body>
  <script>
    let data = prompt("Enter a four-digit integer:");

    if (data.length === 4) {
      let digits = data.split('').map(Number);
      digits = digits.map(digit => (digit + 7) % 10);

      [digits[0], digits[2]] = [digits[2], digits[0]];
      [digits[1], digits[3]] = [digits[3], digits[1]];

      document.write(`<h3>Encrypted Data: ${digits.join('')}</h3>`);
    } else {
      document.write("<p style='color:red;'>Please enter a four-digit number!</p>");
    }
  </script>
</body>
</html>
```

3. Create a HTML Form that allows the user to enter all the details of the passenger (name, age, emailid, gender). Write a JavaScript to validate the emailid, age and gender, where email id should consist of the special symbol @and period(.), where age between 1 to 100 and gender is male or female. Generate an error message in red color nearer to that field.

```
<!DOCTYPE html>
<html>
<head>
```

```
  <title>Passenger Form</title>
  <style>
    .error { color: red; }
  </style>
</head>
<body>
  <form id="passengerForm">
    Name: <input type="text" id="name"><br>
    Age: <input type="number" id="age"><br>
    Email ID: <input type="email" id="email"><br>
    Gender: <input type="text" id="gender"><br>
    <button type="button" onclick="validate()">Submit</button>
  </form>
  <div id="error"></div>

  <script>
    function validate() {
      let age = document.getElementById("age").value;
      let email = document.getElementById("email").value;
      let gender = document.getElementById("gender").value;
      let error = "";

      if (age < 1 || age > 100) {
        error += "<p class='error'>Age should be between 1 and 100.</p>";
      }

      if (!/^[a-zA-Z]+@[a-zA-Z]+\.[a-zA-Z]+$/.test(email)) {
        error += "<p class='error'>Invalid email format.</p>";
      }

      if (gender.toLowerCase() !== "male" && gender.toLowerCase() !== "female") {
        error += "<p class='error'>Gender should be either male or female.</p>";
      }

      document.getElementById("error").innerHTML = error;
    }
  </script>
</body>
</html>
```

4. Write a JavaScript function to count all the sub-strings of a given string which are palindromes and their length is prime.

```
<!DOCTYPE html>
<html>
<head>
  <title>Count Palindromic Substrings</title>
</head>
<body>
  <script>
    function isPrime(n) {
      if (n <= 1) return false;
      for (let i = 2; i * i <= n; i++) {
        if (n % i === 0) return false;
      }
      return true;
    }

    function isPalindrome(str) {
      return str === str.split('').reverse().join('');
    }

    function countPrimeLengthPalindromes(str) {
      let count = 0;
      for (let i = 0; i < str.length; i++) {
        for (let j = i + 1; j <= str.length; j++) {
          let substring = str.substring(i, j);
          if (isPalindrome(substring) && isPrime(substring.length)) {
            count++;
          }
        }
      }
      return count;
    }

    let input = prompt("Enter a string:");
    let result = countPrimeLengthPalindromes(input);
    document.write(`<h3>Number of palindromic substrings with prime length: ${result}</h3>`);
  </script>
</body>
</html>
```

5. Write a script that uses relational and equality operators to compare two Strings input by the user through an HTML form. Output in an HTML textarea whether the first string is less than, equal to or greater than the second.

```
<!DOCTYPE html>
```

```
<html>
<head>
  <title>String Comparison</title>
</head>
<body>
  <form id="comparisonForm">
    String 1: <input type="text" id="string1"><br>
    String 2: <input type="text" id="string2"><br>
    <button type="button" onclick="compareStrings()">Compare</button>
  </form>
  <textarea id="result"></textarea>

  <script>
    function compareStrings() {
      let str1 = document.getElementById("string1").value;
      let str2 = document.getElementById("string2").value;
      let result = "";

      if (str1 < str2) {
        result = "String 1 is less than String 2";
      } else if (str1 > str2) {
        result = "String 1 is greater than String 2";
      } else {
        result = "Both strings are equal";
      }

      document.getElementById("result").value = result;
    }
  </script>
</body>
</html>
```

6. Write a script that inputs text from an HTML form and outputs the text in uppercase and lowercase letters.

```
<!DOCTYPE html>
<html>
<head>
  <title>Uppercase and Lowercase Conversion</title>
</head>
<body>
  <form id="caseForm">
    Input Text: <input type="text" id="textInput"><br>
```

```
    <button type="button" onclick="convertText()">Convert</button>
  </form>
  <p id="uppercase"></p>
  <p id="lowercase"></p>

  <script>
    function convertText() {
      let text = document.getElementById("textInput").value;
      document.getElementById("uppercase").innerText = "Uppercase: " + text.toUpperCase();
      document.getElementById("lowercase").innerText = "Lowercase: " + text.toLowerCase();
    }
  </script>
</body>
</html>
```

7. Write a script that inputs a telephone number as a string in the form (555)555-5555. The script should use strings method substring to extract the area code as token and the last four digits of the phone numbers as a token. Display the area code in one text field and the seven digit phone number in another text field.

```
<!DOCTYPE html>
<html>
<head>
  <title>Phone Number Formatter</title>
</head>
<body>
  <form id="phoneForm">
    Phone Number (Format: (555)555-5555): <input type="text" id="phoneInput"><br>
    <button type="button" onclick="extractPhone()">Extract</button>
  </form>
  <p id="areaCode"></p>
  <p id="phoneNumber"></p>

  <script>
    function extractPhone() {
      let phone = document.getElementById("phoneInput").value;
      let areaCode = phone.substring(1, 4);
      let sevenDigitNumber = phone.substring(5, 8) + phone.substring(9);

      document.getElementById("areaCode").innerText = "Area Code: " + areaCode;
      document.getElementById("phoneNumber").innerText = "Phone Number: " + sevenDigitNumber;
    }
  </script>
```

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

8. A university has asked you to create an HTML document that allows potential students to provide feedback about their campus visit. Your HTML document should contain a form with text boxes for a name, address and e-mail. Provide check boxes that allow prospective students to indicate what they liked most about the campus. These check boxes should include: students, location, campus, atmosphere, dorm rooms and sports. Also, provide radio buttons that ask the prospective student how they became interested in the university. Options should include: friends, television, Internet and other. In addition, provide a text area for additional comments, a submit button and a reset button. Apply validation to accept all values and proper values. Provide Error messages when the values are not entered and not proper values entered.

```
<!DOCTYPE html>
<html>
<head>
  <title>University Feedback</title>
  <style>
    .error { color: red; }
  </style>
</head>
<body>
  <form id="feedbackForm">
    Name: <input type="text" id="name"><br>
    Address: <input type="text" id="address"><br>
    Email: <input type="email" id="email"><br>
    What did you like most about the campus?<br>
    <input type="checkbox" name="like" value="Students"> Students<br>
    <input type="checkbox" name="like" value="Location"> Location<br>
    <input type="checkbox" name="like" value="Campus"> Campus<br>
    <input type="checkbox" name="like" value="Atmosphere"> Atmosphere<br>
    <input type="checkbox" name="like" value="Dorm rooms"> Dorm rooms<br>
    <input type="checkbox" name="like" value="Sports"> Sports<br>
    How did you become interested in the university?<br>
    <input type="radio" name="interest" value="Friends"> Friends<br>
    <input type="radio" name="interest" value="Television"> Television<br>
    <input type="radio" name="interest" value="Internet"> Internet<br>
    <input type="radio" name="interest" value="Other"> Other<br>
    Additional Comments:<br>
    <textarea id="comments"></textarea><br>
    <button type="button" onclick="validateFeedback()">Submit</button>
    <button type="reset">Reset</button>
  </form>
```

```
    <div id="error"></div>

    <script>
        function validateFeedback() {
            let email = document.getElementById("email").value;
            let error = "";

            if (!/^[a-zA-Z]+@[a-zA-Z]+\.[a-zA-Z]+$/.test(email)) {
                error += "<p class='error'>Invalid email format.</p>";
            }

            document.getElementById("error").innerHTML = error;
        }
    </script>
</body>
</html>
```

9. Implement the following functions:
   a) Function celsius returns the Celsius equivalent of a Fahrenheit temperature, using the calculation C = 5.0 / 9.0 * (F - 32);
   b) Function fahrenheit returns the Fahrenheit equivalent of a Celsius temperature, using the calculation F = 9.0 / 5.0 * C + 32;
   c) Use these functions to write a script that enables the user to enter either a Fahrenheit or a Celsius temperature and displays the Celsius or Fahrenheit equivalent, respectively.
   Your HTML document should contain two buttons—one to initiate the conversion from Fahrenheit to Celsius and one to initiate the conversion from Celsius to Fahrenheit.

```
<!DOCTYPE html>
<html>
<head>
    <title>Temperature Converter</title>
</head>
<body>
    <input type="number" id="tempInput">
    <button type="button" onclick="convertToFahrenheit()">Convert to Fahrenheit</button>
    <button type="button" onclick="convertToCelsius()">Convert to Celsius</button>
    <p id="result"></p>

    <script>
        function celsius(fahrenheit) {
            return (5.0 / 9.0) * (fahrenheit - 32);
        }
```

```
    function fahrenheit(celsius) {
        return (9.0 / 5.0) * celsius + 32;
    }

    function convertToFahrenheit() {
        let temp = parseFloat(document.getElementById("tempInput").value);
        document.getElementById("result").innerText = fahrenheit(temp) + " Fahrenheit";
    }

    function convertToCelsius() {
        let temp = parseFloat(document.getElementById("tempInput").value);
        document.getElementById("result").innerText = celsius(temp) + " Celsius";
    }
  </script>
</body>
</html>
```