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IP ASSIGNMENT 1

JAVASCRIPT

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."

Program:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-
scale=1.0">
    <title>Document</title>
    <script>
        function check(){
            let acno=parseInt(prompt("Enter Account Number"));
            let balance=parseInt(prompt("Enter Balance"));
            let charges=parseInt(prompt("Enter Charges"));
            let credits=parseInt(prompt("Enter Credits"));
            let limit=parseInt(prompt("Enter Limit"));

            let newBalance=balance+credits-charges;
            alert("Account no: "+acno+"\n New Balance:
$"+newBalance);
```

```
            if(newBalance>limit){
                document.getElementById("demo").innerHTML="<h2>Credi
t limit exceeded</h2>";
            }
            else{
                document.getElementById("demo").innerHTML="<h2>Credi
t limit not exceeded</h2>";
            }
        }
        window.onload=check;
    </script>
</head>
<body>
    <p id="demo"></p>
</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.

Program:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-
scale=1.0">
    <title>Document</title>
    <script>
        function encrypt(){
        let input=prompt("Enter four digit number: ");
        if(input.length!==4||isNaN(input)){
            alert("Please enter valid number");
            return;
        }
        let
digits=input.split("").map(digit=>(parseInt(digit)+7)%10);
        [digits[0],digits[2]]=[digits[2],digits[0]];
        [digits[1],digits[3]]=[digits[3],digits[1]];
```

```
        let encrypted=digits.join("");

        document.getElementById("res").innerHTML="<h2>Encrypted
number is: "+encrypted+"</h2>";
    }
    window.onload=encrypt;
    </script>
</head>
<body>
    <p id="res"></p>
</body>
</html>
```

3. Create a HTML Form that allows the user to enter all the details of the passenger (name, age, email id, gender). Write a JavaScript to validate the email id, 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 colour nearer to that field.

Program:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-
scale=1.0">
    <title>Document</title>
    <style>
        .error {+
            color: red;
        }
    </style>
</head>
<body>
    <form onsubmit="return valid()">
        <label for="name">Name: </label>
        <input id="name" type="text" name="name" required><br><br>

        <label for="age">Age: </label>
        <input id="age" type="number" name="age" required>
        <span id="ager" class="error"></span>
        <br><br>

        <label for="email">Email: </label>
        <input id="email" type="text" name="email" required>
        <span id="emer" class="error"></span>
        <br><br>
```

```
        <label for="gender">Gender: </label>
        <input type="radio" id="male" name="gender" value="male">
Male
        <input type="radio" id="female" name="gender"
value="female"> Female
        <span id="gener" class="error"></span>
        <br><br>

        <input type="submit" value="submit">
        <input type="reset" value="cancel">
    </form>

    <script>
        function valid() {
            let isValid = true;

            document.getElementById("ager").innerHTML = "";
            document.getElementById("emer").innerHTML = "";
            document.getElementById("gener").innerHTML = "";

            const age = document.getElementById("age").value;
            if (age < 1 || age > 100) {
                document.getElementById("ager").innerHTML = "Age
must be between 1 and 100";
                isValid = false;
            }

            const email = document.getElementById("email").value;
            if (!email.includes("@") || !email.includes(".")) {
                document.getElementById("emer").innerHTML = "Enter a
valid email";
                isValid = false;
            }

            const male = document.getElementById("male").checked;
            const female =
document.getElementById("female").checked;
            if (!male && !female) {
                document.getElementById("gener").innerHTML = "Please
select gender";
                isValid = false;
            }

            return isValid;
        }
    </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.

Program:

```
function isPrime(num) {
    if (num <= 1) return false;
    for (let i = 2; i * i <= num; i++) {
        if (num % i === 0) return false;
    }
    return true;
}

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

function countPrime(str) {
    let count = 0;

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

    return count;
}

const inputString = "aabaa";
console.log(countPrime(inputString));
```

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 text area whether the first string is less than, equal to or greater than the second.

Program:

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

```
</head>
<body>
    <form onsubmit="return valid()">
        <label>String 1: </label>
        <input type="text" id="str1"><br>
        <label>String 2: </label>
        <input type="text" id="str2"><br>
        <input type="submit" value="submit">
        <input type="reset" value="cancel">

        <p id="result"></p>
    </form>
    <script>
        function valid(){
            let result="";
            var str1=document.getElementById("str1").value;
            var str2=document.getElementById("str2").value;
            if(str1<str2){
                result="The string 1 is less than string 2";
            }
            else if(str2<str1){
                result="The string 2 is less than string 1";
            }
            else{
                result="The string 1 is equal to string 2";
            }
            document.getElementById("result").innerHTML=result;
            return false;
        }
    </script>
</body>
</html>
```

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

Program:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-
scale=1.0">
    <title>Document</title>
</head>
<body>
    <form onsubmit="return cases()">
    <label>String: </label>
    <input type="text" id="str">
```

```
    <br><br>
    <input type="submit" value="submit">
    <input type="reset" value="cancel">
</form>
<p id="upper"></p>
<p id="lower"></p>
<script>
    function cases(){
        let text=document.getElementById("str").value;
        let upper=text.toUpperCase();
        let lower=text.toLowerCase();
        document.getElementById("upper").innerHTML=upper;
        document.getElementById("lower").innerHTML=lower;
        return false;
    }
</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.

Program:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-
scale=1.0">
    <title>Document</title>
</head>
<body>
    <form onsubmit="return extract()">
        <label for="phone">Enter Phone Number (format: (555)555-
5555):</label><br>
        <input type="text" id="phone" placeholder="(555)555-5555"
required><br><br>

        <input type="submit" value="Extract">
        <input type="reset" value="Clear"><br><br>
    </form>

    <div class="output-area">
        <label>Area Code:</label>
        <input type="text" id="areaCode" readonly><br><br>
```

```
        <label>Phone Number (last 7 digits):</label>
        <input type="text" id="sevenDigitPhone" readonly>
    </div>

    <script>
        function extract() {
            const phone = document.getElementById("phone").value;

            const areaCode = phone.substring(1, 4);
            const sevenDigitPhone = phone.substring(5, 8) +
phone.substring(9);

            document.getElementById("areaCode").value = areaCode;
            document.getElementById("sevenDigitPhone").value =
sevenDigitPhone;

            return false;
        }
    </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.

Program:

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

```
<body>
    <form onsubmit="return valid()">
            <label for="name">Name:</label><br>
            <input type="text" id="name" required>
            <span id="nameError" class="error"></span><br><br>

            <label for="address">Address:</label><br>
            <input type="text" id="address" required>
            <span id="addressError" class="error"></span><br><br>

            <label for="email">Email:</label><br>
            <input type="email" id="email" required>
            <span id="emailError" class="error"></span><br><br>

            <label>What did you like most about the campus? (Select
all that apply):</label><br>
            <input type="checkbox" id="students" name="likes"
value="students"> Students<br>
            <input type="checkbox" id="location" name="likes"
value="location"> Location<br>
            <input type="checkbox" id="campus" name="likes"
value="campus"> Campus<br>
            <input type="checkbox" id="atmosphere" name="likes"
value="atmosphere"> Atmosphere<br>
            <input type="checkbox" id="dorms" name="likes"
value="dorms"> Dorm Rooms<br>
            <input type="checkbox" id="sports" name="likes"
value="sports"> Sports<br>
            <span id="likesError" class="error"></span><br><br>

            <label>How did you become interested in the
university?</label><br>
            <input type="radio" id="friends" name="interest"
value="friends"> Friends<br>
            <input type="radio" id="television" name="interest"
value="television"> Television<br>
            <input type="radio" id="internet" name="interest"
value="internet"> Internet<br>
            <input type="radio" id="other" name="interest"
value="other"> Other<br>
            <span id="interestError" class="error"></span><br><br>

            <label for="comments">Additional Comments:</label><br>
            <textarea id="comments" rows="4" cols="40"></textarea>

        <input type="submit" value="Submit">
        <input type="reset" value="Reset">
    </form>

    <script>
        function valid() {
```

```
            let isValid = true;

            const name = document.getElementById("name").value;
            if (name.trim() === "") {
                document.getElementById("nameError").innerText =
"Name is required.";
                isValid = false;
            } else {
                document.getElementById("nameError").innerText = "";
            }

            const address =
document.getElementById("address").value;
            if (address.trim() === "") {
                document.getElementById("addressError").innerText =
"Address is required.";
                isValid = false;
            } else {
                document.getElementById("addressError").innerText =
"";
            }

            const email = document.getElementById("email").value;
            const emailPattern = /^[^\s@]+@[^\s@]+\.[^\s@]+$/;
            if (!emailPattern.test(email)) {
                document.getElementById("emailError").innerText =
"Please enter a valid email address.";
                isValid = false;
            } else {
                document.getElementById("emailError").innerText =
"";
            }

            const likes =
document.querySelectorAll('input[name="likes"]:checked');
            if (likes.length === 0) {
                document.getElementById("likesError").innerText =
"Please select at least one option you liked.";
                isValid = false;
            } else {
                document.getElementById("likesError").innerText =
"";
            }

            const interest =
document.querySelector('input[name="interest"]:checked');
            if (!interest) {
                document.getElementById("interestError").innerText =
"Please select how you became interested in the university.";
                isValid = false;
            } else {
```

```
                document.getElementById("interestError").innerText =
"";
            }

            return isValid;
        }
    </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.

Program:

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

    <label for="temperature">Enter Temperature:</label>
    <input type="number" id="temperature" placeholder="Enter a
temperature"><br><br>

    <button onclick="convertToCelsius()">Convert to Celsius</button>
    <button onclick="convertToFahrenheit()">Convert to
Fahrenheit</button>

    <div class="result" id="result"></div>
```

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

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

        function convertToCelsius() {
            const temp =
document.getElementById("temperature").value;
            if (temp === "") {
                document.getElementById("result").innerText =
"Please enter a temperature.";
                return;
            }
            const fahrenheitValue = parseFloat(temp);
            const celsiusValue =
celsius(fahrenheitValue).toFixed(2);
            document.getElementById("result").innerText =
`${fahrenheitValue}°F is equal to ${celsiusValue}°C.`;
        }

        function convertToFahrenheit() {
            const temp =
document.getElementById("temperature").value;
            if (temp === "") {
                document.getElementById("result").innerText =
"Please enter a temperature.";
                return;
            }
            const celsiusValue = parseFloat(temp);
            const fahrenheitValue =
fahrenheit(celsiusValue).toFixed(2);
            document.getElementById("result").innerText =
`${celsiusValue}°C is equal to ${fahrenheitValue}°F.`;
        }
    </script>
</body>
</html>
```