# JavaScript Practice Lab

## Lab Objective

By the end of this lab, students will be able to:

1. Understand and use JavaScript variables and data types.
2. Write and call functions.
3. Implement loops and conditional statements.
4. Manipulate the DOM (Document Object Model).

## Prerequisites

Students should have a basic understanding of HTML and CSS.

## Lab Setup

1. Create a new folder named `js-practice-lab`.
2. Inside this folder, create three files: `index.html`, `styles.css`, and `script.js`.

## Lab Instructions

### Part 1: HTML and CSS Setup

1. **index.html**: Set up the basic HTML structure.

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-
scale=1.0">
    <title>JavaScript Practice Lab</title>
    <link rel="stylesheet" href="styles.css">
</head>
<body>
    <h1>JavaScript Practice Lab</h1>
    <div id="content">
        <button id="colorButton">Change Background Color</button>
        <p id="message"></p>
    </div>
    <script src="script.js"></script>
</body>
</html>
```

2. **styles.css**: Add some basic styles.

```
body {
```

```
    font-family: Arial, sans-serif;
    text-align: center;
    background-color: #f4f4f4;
    margin: 0;
    padding: 0;
}

#content {
    margin-top: 50px;
}

button {
    padding: 10px 20px;
    font-size: 16px;
}

#message {
    margin-top: 20px;
    font-size: 18px;
    color: #333;
}
```

**Part 2: JavaScript Basics**

3. **script.js**: Start with basic variable declaration and functions.

```
// Variables
let backgroundColors = ['#f28b82', '#fbbc04', '#fff475', '#ccff90',
'#a7ffeb', '#d7aefb', '#fdcfe8'];
let currentIndex = 0;

// Function to change the background color
function changeBackgroundColor() {
    document.body.style.backgroundColor =
backgroundColors[currentIndex];
    currentIndex = (currentIndex + 1) % backgroundColors.length;
}

// Event Listener for Button
document.getElementById('colorButton').addEventListener('click',
changeBackgroundColor);
```

4. Test the setup by opening `index.html` in a web browser and clicking the button.

**Part 3: Conditional Statements and Loops**

5. **script.js**: Enhance the JavaScript with conditionals and loops.

```
// Variables
let colors = ['#f28b82', '#fbbc04', '#fff475', '#ccff90', '#a7ffeb',
'#d7aefb', '#fdcfe8'];
let currentIndex = 0;

// Function to change the background color
function changeBackgroundColor() {
```

```
    document.body.style.backgroundColor = colors[currentIndex];
    currentIndex = (currentIndex + 1) % colors.length;
}

// Event Listener for Button
document.getElementById('colorButton').addEventListener('click',
changeBackgroundColor);

// Loop through colors array and log each color
colors.forEach((color, index) => {
    console.log(`Color ${index + 1}: ${color}`);
});

// Function with conditional statement
function displayMessage() {
    let messageElement = document.getElementById('message');
    if (currentIndex === 0) {
        messageElement.textContent = "You've cycled through all the
colors!";
    } else {
        messageElement.textContent = `Color index is now
${currentIndex}`;
    }
}

// Call displayMessage function
document.getElementById('colorButton').addEventListener('click',
displayMessage);
```

6. Test the functionality by clicking the button and observing the changes and console logs.

**Part 4: DOM Manipulation**

7. **script.js**: Add more interactive DOM manipulation.

```
// Variables
let colors = ['#f28b82', '#fbbc04', '#fff475', '#ccff90', '#a7ffeb',
'#d7aefb', '#fdcfe8'];
let currentIndex = 0;

// Function to change the background color
function changeBackgroundColor() {
    document.body.style.backgroundColor = colors[currentIndex];
    currentIndex = (currentIndex + 1) % colors.length;
}

// Function to display a message
function displayMessage() {
    let messageElement = document.getElementById('message');
    if (currentIndex === 0) {
        messageElement.textContent = "You've cycled through all the
colors!";
    } else {
        messageElement.textContent = `Color index is now
${currentIndex}`;
    }
```

```
}

// Function to create a new element
function createNewElement() {
    let newElement = document.createElement('div');
    newElement.textContent = "I'm a new element!";
    newElement.style.backgroundColor =
colors[Math.floor(Math.random() * colors.length)];
    newElement.style.padding = '10px';
    newElement.style.marginTop = '10px';
    document.getElementById('content').appendChild(newElement);
}

// Event Listener for Button
document.getElementById('colorButton').addEventListener('click', ()
=> {
    changeBackgroundColor();
    displayMessage();
    createNewElement();
});
```

8. Test the final setup by clicking the button and observing the changes.

## Additional Challenges

1. Add a second button to reset the background color to its original state.
2. Create a text input and a button that allows users to add custom messages to the page.
3. Implement a function that changes the text color of all paragraphs to a random color from the array each time a button is clicked.