HTML, CSS and JAVASCRIPT

Assignment 1: Create a JavaScript object representing a user with properties for name, email, and age. Write functions that manipulate this object, such as changing the name, updating the email, and calculating the user's birth year.

HTML:

```
<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>JavaScript User Object</title>

    <script defer src="script.js"></script>

</head>

<body>

    <h1>JavaScript User Object</h1>

    <div id="output"></div>

</body>

</html>
```

JavaScript:

```
// script.js

// Create a user object

let user = {

    name: 'Alice Johnson',

    email: 'alice@example.com',

    age: 28,

};


// Function to change the user's name
```

```javascript
function changeName(newName) {
    user.name = newName;
}


// Function to update the user's email
function updateEmail(newEmail) {
    user.email = newEmail;
}


// Function to calculate the user's birth year
function calculateBirthYear(currentYear) {
    return currentYear - user.age;
}


// Test the functions
changeName('Alice Smith');
updateEmail('alice.smith@example.com');
let birthYear = calculateBirthYear(new Date().getFullYear());


// Output the updated user object and birth year
document.getElementById('output').innerHTML = `
    <p>Name: ${user.name}</p>
    <p>Email: ${user.email}</p>
    <p>Age: ${user.age}</p>
    <p>Birth Year: ${birthYear}</p>
`;
```

Assignment 2: Use regular expressions in JavaScript to validate the email address entered in the form. It should check for the correct format of the email and display a message to the user if the format is incorrect.

HTML:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>JavaScript User and Email Validation</title>
    <script defer src="script.js"></script>
    <link rel="stylesheet" href="styles.css">
</head>
<body>
    <h1>JavaScript User Object</h1>
    <div id="output"></div>

    <h1>Email Validation</h1>
    <form id="emailForm">
        <label for="email">Email:</label>
        <input type="email" id="email" name="email">
        <button type="button" onclick="validateEmail()">Validate</button>
    </form>
    <div id="message"></div>
</body>
</html>
```

Javascript:

```javascript
// script.js
// Create a user object
let user = {
    name: 'Alice Johnson',
    email: 'alice@example.com',
    age: 28,
};

// Function to change the user's name
function changeName(newName) {
    user.name = newName;
}

// Function to update the user's email
function updateEmail(newEmail) {
    user.email = newEmail;
}

// Function to calculate the user's birth year
function calculateBirthYear(currentYear) {
    return currentYear - user.age;
}

// Test the functions
changeName('Alice Smith');
updateEmail('alice.smith@example.com');
```

```javascript
let birthYear = calculateBirthYear(new Date().getFullYear());


// Output the updated user object and birth year
document.getElementById('output').innerHTML = `
  <p>Name: ${user.name}</p>
  <p>Email: ${user.email}</p>
  <p>Age: ${user.age}</p>
  <p>Birth Year: ${birthYear}</p>
`;


// Regular expression for email validation
const emailPattern = /^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$/;


// Function to validate email
function validateEmail() {
  let email = document.getElementById('email').value;
  let message = document.getElementById('message');

  if (emailPattern.test(email)) {
    message.textContent = 'Valid email address!';
    message.style.color = 'green';
  } else {
    message.textContent = 'Invalid email address!';
    message.style.color = 'red';
  }
}
```

CSS:

```css
/* styles.css */
body {
    font-family: Arial, sans-serif;
    padding: 20px;
}

form {
    margin-bottom: 20px;
}

label {
    display: inline-block;
    width: 100px;
}

input[type="email"] {
    width: 200px;
}

button {
    margin-left: 10px;
}
#message {
    margin-top: 10px;
    font-weight: bold;
}
```