# Lab 4 - Web Engineering

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## Qno.1: Change Background Color using Arrow Functions

Create a system using HTML, CSS, and JavaScript with arrow functions. The webpage should include a button that, when clicked, triggers an arrow function to change the background color of the webpage.

• The HTML file should include a button with the ID `changeColorButton`.

• The CSS file should style the body and the button.

• The JavaScript file should define an arrow function `changeBackgroundColor`, which generates a random color and updates the background color of the webpage dynamically.

• Use `addEventListener` to handle the button click event.

Hint: To generate a random color, use the formula:  
```javascript  
rgb(${Math.random() \* 256}, ${Math.random() \* 256}, ${Math.random() \* 256})  
```

## Qno.2: Arithmetic Operations using JavaScript Arrow Functions

Create a webpage that allows users to enter two numbers and apply basic arithmetic operations using JavaScript arrow functions. The calculations should be triggered through the onclick event of a button.

• The HTML file should include input fields for two numbers, a button to perform calculations, and a section to display results.

• The CSS file should provide basic styling.

• The JavaScript file should define an arrow function `performOperations` that:

- Reads input values.

- Performs addition, subtraction, multiplication, and division.

- Displays the result dynamically.

- Includes input validation to ensure valid numbers are entered.

Note: One operation should be performed at a time with proper validations.

## Qno.3: Signup & Login Form Using HTML, CSS, and JavaScript

Develop a signup and login form using HTML, CSS, and JavaScript. Users should be able to sign up with their details and then log in using the provided credentials.

Features:

✔ User Signup – Users enter their name, email, and password to create an account.

✔ Redirect to Login – After successful signup, users are redirected to the login page.

✔ User Login – Users enter their email and password to log in.

✔ Basic Form Validation – Ensures that fields are filled correctly and passwords meet security requirements.

✔ Responsive Design – Works on both desktop and mobile screens.

Technologies Used:

• HTML – For structuring the signup and login forms.

• CSS – For styling the forms with a modern look.

• JavaScript – For handling form validation and redirection.

🚨 Hint: Since no backend is involved, you can use cookies, localStorage, or sessionStorage to store user credentials temporarily for login verification.

## Qno.4: Simple Project Management Page

Create a Project Management Page using HTML, CSS, and JavaScript. The page should allow users to:

• Add a new project with a title, description, and status (Pending, In Progress, Completed).

• Edit project details (title, description, status).

• Delete projects from the list.

• Filter projects by status (Show only Pending, In Progress, or Completed projects).

• Search for projects by title.

🚨 Hint: Since no backend is included, localStorage can be used to store projects so they remain saved even after a page refresh.

## Final Notes:

• Q3 and Q4 involve data storage but no backend is included, so consider using cookies, sessionStorage, or localStorage for handling temporary data.

• Q1 and Q2 do not require storage and work purely on UI interactions.