

## Web Technologies Laboratory 03

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**PANEL - E , BATCH E1**

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**Aim: Client-side Form Validations using JavaScript, DOM real-time update, JQuery to develop Ajax based applications.**

**Aim:** Write a program to perform following form validations using JavaScript:

- a) All fields mandatory,
  - b) Phone number, Email Address, Zip code Validation etc.
- Include JavaScript to access and manipulate Document Object Model (DOM) objects in an HTML web page.
- Include JQuery to develop to develop your application as an Ajax based application.

### Objectives:

1. To understand what form validation is.
2. To learn basic functioning of DOM objects.
3. To learn how to apply various techniques to implement it.

### Theory:

1. Different types of form validations.

#### Different types of form validations:

##### Client-Side Validation:

- Performed on the user's browser before submitting the form to the server.
- Common methods: JavaScript or HTML5 attributes (e.g., **required**, **pattern**, **min**, **max**).
- Example: Ensuring an email is in the correct format.

##### Server-Side Validation:

- Conducted after the form data has been sent to the server.
- Provides a more secure validation process, as client-side checks can be bypassed.
- Example: Checking if a username already exists in the database.

2. HTML Document Object Model.

The **DOM** is a programming interface for HTML and XML documents.

It represents the structure of a document as a tree of objects, where each object corresponds to a part of the document (elements, attributes, etc.). You can use the DOM to manipulate HTML elements, such as changing the text content, attributes, styles, etc.

Example: Changing the content of a paragraph using JavaScript:

javascript

Copy code

```
document.getElementById("myParagraph").innerHTML = "New content!";
```

### 3. What is JQuery? Write various JQuery Selectors.

**jQuery** is a fast, lightweight JavaScript library that simplifies HTML document traversing, event handling, and animation. It is widely used to make client-side scripting easier with simpler syntax.

#### Basic Selectors:

- `$("p")`: Selects all `<p>` elements.
- `$("#id")`: Selects an element with a specific id (e.g., `$("#header")`).

#### Class Selector:

- `$(".class")`: Selects all elements with a specific class (e.g., `$(".menu")`).

#### Attribute Selector:

- `$("[name='email']")`: Selects elements with a specific attribute value.

#### Child Selector:

- `"parent > child"`: Selects direct child elements of a parent (e.g., `$("div > p")` selects all `<p>` elements directly within `<div>`).

#### FAQ:

1. Write 3 reasons why Form validations are important.

#### Prevent Invalid Data:

- a. Ensures that the data entered by the user meets the required criteria (e.g., correct email format, mandatory fields).

#### Improves User Experience:

- b. Provides real-time feedback to users, helping them correct errors as they fill out the form.

**Enhances Security:**

- c. Protects against malicious inputs, such as script injections or SQL injections, by ensuring only valid data is processed by the server.

- 2. Give an example of how to modify an attribute value using DOM.

```
javascript
// Modifying the 'src' attribute of an image element
document.getElementById("myImage").setAttribute("src",
"newImage.jpg");
```

- 3. What is jQuery Ajax?

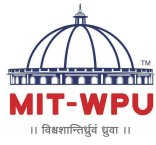
**jQuery Ajax** is a method provided by jQuery to load data from a server asynchronously without reloading the entire webpage.

It enables dynamic updates of web pages by exchanging small amounts of data with the server.

Example:

javascript

```
$.ajax({
  url: "server-endpoint.php",
  method: "GET",
  success: function(data) {
    $("#result").html(data);
  }
});
```



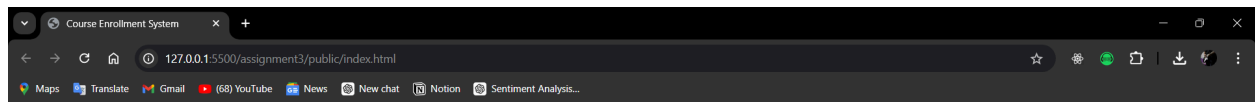
Dr. Vishwanath Karad

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School of Computer Engineering & Technology  
Class: Third Year B.Tech CSE (Trimester VIII)  
Course: **Web Technologies**

**Output: Screenshots of the output to be attached.**



## Student Registration

Name

Email address  
 ! Please fill out this field.

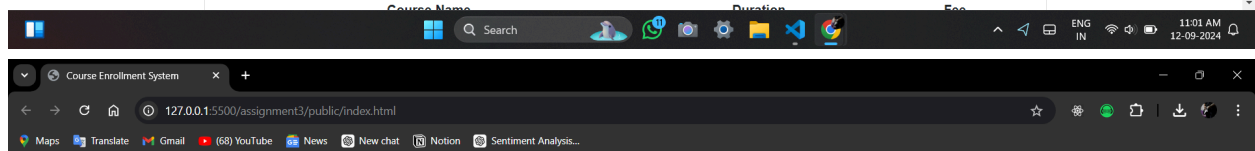
Phone number

Password

Confirm Password

[Register](#)

## Available Courses



## Student Registration

Name

Email address

Phone number

Password

Confirm Password

[Register](#)

## Available Courses



Course Enrollment System

127.0.0.1:5500/assignment3/public/index.html

## Student Registration

Name

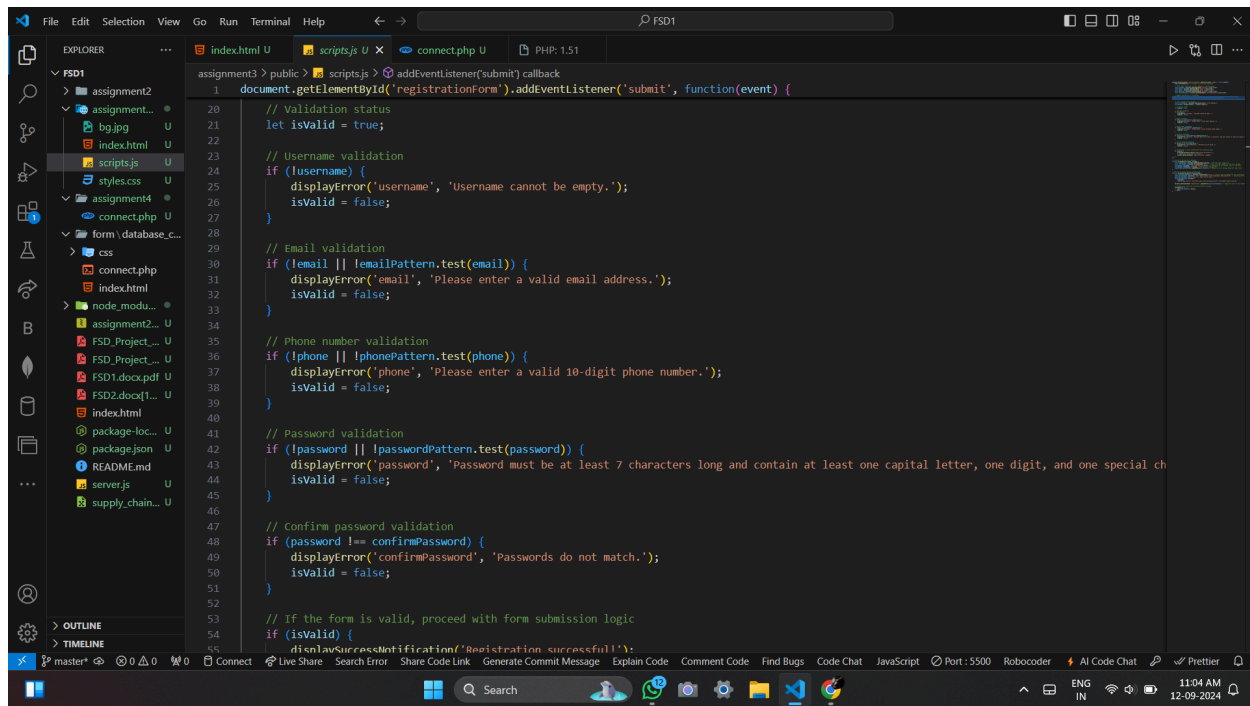
Email address  
  
Please enter a valid email address.

Phone number  
  
Please enter a valid 10-digit phone number.

Password  
  
Password must be at least 7 characters long and contain at least one capital letter, one digit, and one special character from the set (&,\$,#,@).

Confirm Password

```
assignment3 > public > scripts.js > addEventListener('submit') callback
1 document.getElementById('registrationForm').addEventListener('submit', function(event) {
2   event.preventDefault(); // Prevent the form from submitting
3
4   // Fetch input values and trim any leading or trailing spaces
5   const username = document.getElementById('username').value.trim();
6   const email = document.getElementById('email').value.trim();
7   const phone = document.getElementById('phone').value.trim();
8   const password = document.getElementById('password').value.trim();
9   const confirmPassword = document.getElementById('confirmPassword').value.trim();
10
11   // Regular Expressions for validation
12   const emailPattern = /^[a-zA-Z]+@[a-zA-Z]{3,}\.[a-zA-Z]{2,3}$/; // Pattern for valid email address
13   const phonePattern = /^[0-9]{10}$/; // Pattern for valid 10-digit phone number
14   const passwordPattern = /^(?=.*[A-Z])(?=.*[a-z])(?=.*[0-9])(?=.*[!@#$%^&*])[A-Za-z0-9!@#$%^&]{7,}$/; // Pattern for password validation
15
16   // Clear previous error messages
17   const errorElements = document.querySelectorAll('.error-message');
18   errorElements.forEach(element => element.remove());
19
20   // Validation status
21   let isValid = true;
22
23   // Username validation
24   if (!username) {
25     displayError('username', 'Username cannot be empty.');
```



```

assignment3 > public > scripts > addEventListener('submit') callback
1 document.getElementById('registrationForm').addEventListener('submit', function(event) {
2     // Validation status
3     let isValid = true;
4
5     // Username validation
6     if (!username) {
7         displayError('username', 'Username cannot be empty.');
```

## Problem Statement:

Write a program to design Student registration form by using HTML, CSS having following fields: Username, Email, Phone number, Password, Confirm Password and write external javascript code to achieve following validations

- Fields should not be empty. If spaces are entered those should be considered empty
- Phone number must accept only numeric values and it should be 10 digits
- Password length must be at least 7 and it should contain at least one capital letter, one digit and one special character from the set (&,\$,#,@)
- Value entered in password field and confirm password fields must match

Email address must contain @ sign and a ., there should be few letters before the @ sign, there should be three letters between @ sign and a . There must be 3 or 2 letters after the . (hint: Use regular expression)

Write a client-side script with JavaScript to access and manipulate Document Object Model (DOM) objects in an HTML web page. Develop a dynamic web page using javascript and DOM. Make use of the following for accessing elements

- getElementById, getElementsByTagName, getElementsByClassName
- Change the text using innerHTML property
- Change the CSS properties like color, position of a particular element on the page
- Change the image source after clicking on a button
- Add a text node and attach it to a parent node
- Delete a node

Include jQuery to perform following operations:

- Change button text using jQuery.
- Set background-image using jQuery CSS property.



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- Access HTML form data using jQuery.
- Add attribute using jQuery

Use this reference link for jQuery :

<https://www.w3resource.com/jquery-exercises/part1/index.php>