**Full Stack Development Laboratory 03**

**Name: Aayush Shah**

**Panel: H**

**Roll No.: 07**

**TY. B.Tech CSE**

**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 is form validation.
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.**

 **Client-Side Validation**: Validation occurs in the browser using JavaScript or HTML5 attributes like required, pattern, etc. It provides immediate feedback to users without needing to submit the form.

 **Server-Side Validation**: Validation occurs on the server after the form is submitted. It's more secure as it checks the data regardless of client-side validation.

 **Real-Time Validation**: Validation happens as the user fills out the form, providing instant feedback, often using JavaScript.

1. **HTML Document Object Model.**

The HTML DOM is a programming interface for web documents. It represents the structure of a document as a tree of objects, where each element, attribute, and text becomes a node. The DOM allows scripts to dynamically access and update the content, structure, and style of a document.

1. **What is JQuery? Write various JQuery Selectors.**

jQuery is a fast, small, and feature-rich JavaScript library. It simplifies tasks like HTML document traversal, event handling, animation, and Ajax interactions with an easy-to-use API that works across a multitude of browsers.

Various jQuery Selectors:

* Element Selector: $("p") - Selects all <p> elements.
* ID Selector: $("#id") - Selects the element with the specified ID.
* Class Selector: $(".class") - Selects all elements with the specified class.
* Attribute Selector: $("[attribute=value]") - Selects elements with a specified attribute value.
* Child Selector: $("parent > child") - Selects the child elements of a specific parent.
* Pseudo-Class Selector: $("p:first") - Selects the first <p> element.

**FAQ:**

1. **Write 3 reasons why Form validations are important.**

 **Data Integrity**: Ensures that the data submitted is correct, consistent, and in the expected format, preventing errors in data processing and storage.

 **Security**: Helps prevent malicious input, such as SQL injection or cross-site scripting (XSS), by validating input before it's processed.

 **User Experience**: Provides immediate feedback to users about mistakes, helping them correct issues before submission, which leads to a smoother and more intuitive experience.

1. **Give an example of how to modify an attribute value using DOM.**

// Assuming there's an image element in the HTML: <img id="myImage" src="oldImage.jpg">

var imageElement = document.getElementById("myImage"); imageElement.setAttribute("src", "newImage.jpg"); // Changes the 'src' attribute value

This code selects an image element by its ID and changes the src attribute to display a different image.

1. **What is jQuery Ajax?**

jQuery Ajax is a method provided by jQuery to perform asynchronous HTTP requests. It allows you to send and receive data from a server without refreshing the web page, enabling dynamic content updates and interactions.

Example:

$.ajax({

url: "server-endpoint.php",

type: "GET",

success: function(response) {

// Handle the response from the server

$("#result").html(response);

},

error: function(xhr, status, error)

{

console.log("Error: " + error);

}

});

This example sends a GET request to a server endpoint and updates the content of an element with the response from the server.

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

**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.
* 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

**Output:**

**Index.html**

**A screen shot of a computer

Description automatically generated**

**A screenshot of a computer

Description automatically generated**

**Display.html**

**A screenshot of a computer

Description automatically generated**

**A white rectangular object with black text

Description automatically generated**

**Style.css**

**A screenshot of a computer

Description automatically generated**

**Script.js**

**A screen shot of a computer

Description automatically generated**

**Github link:** [**https://github.com/Aayush01055/FSD-Assignments.git**](https://github.com/Aayush01055/FSD-Assignments.git)