



Dr. Vishwanath Karad
MIT WORLD PEACE
UNIVERSITY | PUNE
TECHNOLOGY, RESEARCH, SOCIAL INNOVATION & PARTNERSHIPS

School of Computer Engineering and Technology
Academic Year: 2023-2024 Sem V
Full Stack Development (FSD)

Lab Assignment : 03

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

Prepared By
Saurabh Jitendra Jadhav
Roll No:PA12
Batch A1
September 29,2023

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:

To understand what is form validation.

To learn basic functioning of DOM objects.

To learn how to apply various techniques to implement it.

Theory:

Q.1: Different types of form validations.

->Form validation is the process of ensuring that user-submitted data in a web form is correct and meets the specified criteria before it is sent to the server for further processing. Different types of form validations include:

Required Fields: Ensuring that mandatory fields are not left empty.

Data Type Validation: Validating that the data entered matches the expected data type (e.g., numbers, email addresses).

Length Validation: Checking the length of input data (e.g., minimum and maximum character limits).

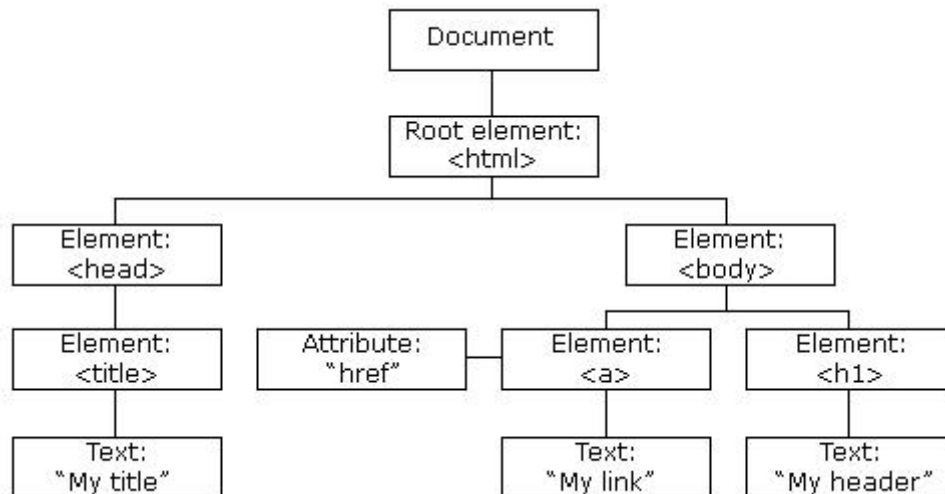
Pattern Matching: Verifying data against a specific pattern or regular expression (e.g., validating a phone number format).

Comparative Validation: Comparing two input fields (e.g., password confirmation).

Numeric Range Validation: Ensuring that numeric values fall within a specified range.

Q.2: HTML Document Object Model.

->The HTML Document Object Model is a representation of the structure of a web page in a hierarchical tree-like format. It allows JavaScript to access and manipulate elements within the HTML document dynamically.



HTML DOM Tree of Objects

Elements: HTML tags like `<input>`, `<form>`, etc., are represented as elements in the DOM.

Properties: Elements have properties (e.g., `value`, `innerHTML`) that can be accessed and modified.

Methods: Elements have methods (e.g., `getElementById`, `querySelector`) to interact with them.

Events: DOM elements can be associated with events (e.g., `click`, `submit`, `change`) to trigger JavaScript functions

Q.3: What is JQuery? Write various JQuery Selectors.

->jQuery is a popular JavaScript library that simplifies DOM manipulation and event handling. It provides a concise and efficient way to select and manipulate HTML elements. Various jQuery selectors can be used to target specific elements in the DOM.

1. **Element Selector:** Selects elements by their HTML tag name (e.g., `$("p")` selects all `<p>` elements).
2. **ID Selector:** Selects an element by its unique id attribute (e.g., `$("#myId")` selects the element with `id="myId"`).
3. **Class Selector:** Selects elements by their CSS class (e.g., `$(".myClass")` selects all elements with the class `"myClass"`).
4. **Attribute Selector:** Selects elements by their attributes (e.g., `$("[data-type='value']")` selects elements with a specific data attribute value).
5. **Descendant Selector:** Selects elements that are descendants of a specific element (e.g., `$("ul li")` selects all `` elements within `` elements).

FAQ:

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

-> Form validations are important for the following reasons:

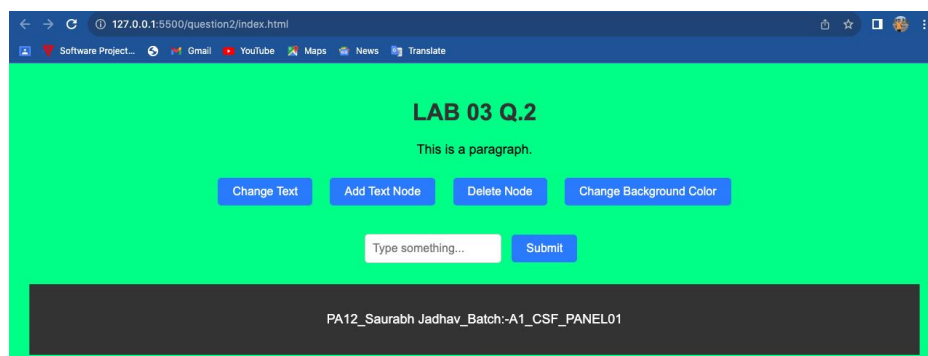
- A. **Data Accuracy:** Form validations ensure that the data submitted by users is accurate and follows the expected format. This prevents the submission of incorrect or incomplete information, reducing errors and improving data quality.
- B. **Security:** Validations help protect against malicious inputs and potential security vulnerabilities like SQL injection or cross-site scripting (XSS) attacks. They ensure that users cannot inject harmful code or exploit vulnerabilities in the application.
- C. **User Experience:** Validations enhance the user experience by providing immediate feedback to users when they make errors, such as filling out required fields or entering invalid data. This feedback helps users correct their mistakes and prevents frustration.

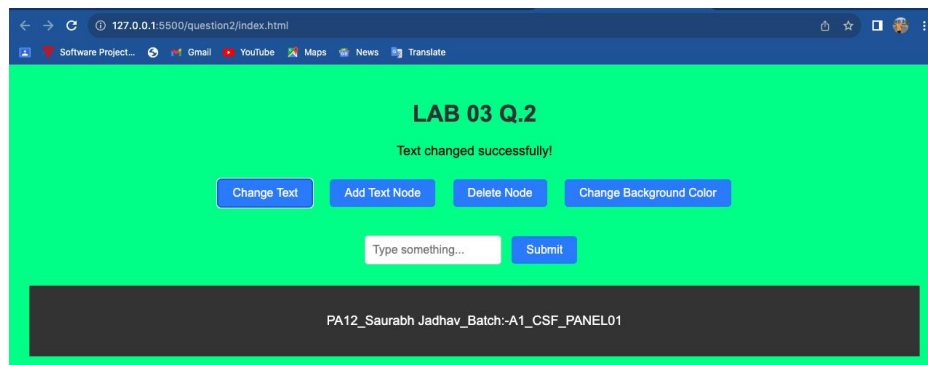
Q.2. Give an example of how to modify an attribute value using DOM.

-> **Example code:-**

```
<p id="demo">This is a paragraph.</p>
<button id="changeTextButton">Change Text</button>
<script>
  $("#changeTextButton").click(function() {
    $("#demo").text("Text changed successfully!");
  });
</script>
```

Output:





Q.3.What is jQuery Ajax?

->jQuery Ajax is a set of functions provided by the jQuery library that simplifies the process of making asynchronous HTTP requests from a web page. It allows developers to interact with a web server without requiring a full page refresh.

Asynchronous Communication: jQuery Ajax enables web pages to send and receive data from a server without blocking the user's interaction with the page. This asynchronous behavior enhances the user experience.

HTTP Requests: It can perform various HTTP requests such as GET, POST, PUT, DELETE, etc., to retrieve or send data to the server.

Callback Functions: jQuery Ajax uses callback functions to handle responses from the server. Developers can define functions to be executed when the request succeeds or fails.

Cross-Browser Compatibility: jQuery abstracts away browser-specific differences in handling Ajax requests, making it easier to write cross-browser compatible code.

Data Formats: It supports different data formats, including JSON, XML, HTML, and text, making it versatile for various data exchange scenarios.

Implementation:-

<https://github.com/Saurabh3207/FSD-Javascript-lab03>

Problem Statement 1:-

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

1. Fields should not be empty. If spaces are entered those should be considered empty
 2. Phone number must accept only numeric values and it should be 10 digits
 3. 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 (&,\$,#@)
 4. 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)

Output screenshot:-

The screenshot displays a web browser window with the address bar showing '127.0.0.1:5500/index.html'. The main content area has a light blue background. Centered on this background is a white rectangular form titled 'Student Registration'. Below the title, the text 'PA12-SaurabhJadhav' is visible. The form contains five input fields, each with a label above it: 'Username:', 'Email:', 'Phone number:', 'Password:', and 'Confirm Password:'. At the bottom of the form is a blue button with the text 'Register' in white.

← → ↻ ⓘ 127.0.0.1:5500/index.html

📄 ☆ 🦊 🛡️ ⚙️ 🖱️ 👤 ⋮

Student Registration

PA12-SaurabhJadhav

Username:

Email:

Phone number:

Password:

Confirm Password:

Register

Please fill in this field.

← → ↻ ⓘ 127.0.0.1:5500/index.html

🦊 🛡️ ⚙️ 🖱️ 👤 ⋮

127.0.0.1:5500 says
Phone number must be numeric and have 10 digits.

OK

PA12-SaurabhJadhav

Username:

Email:

Phone number:

Password:

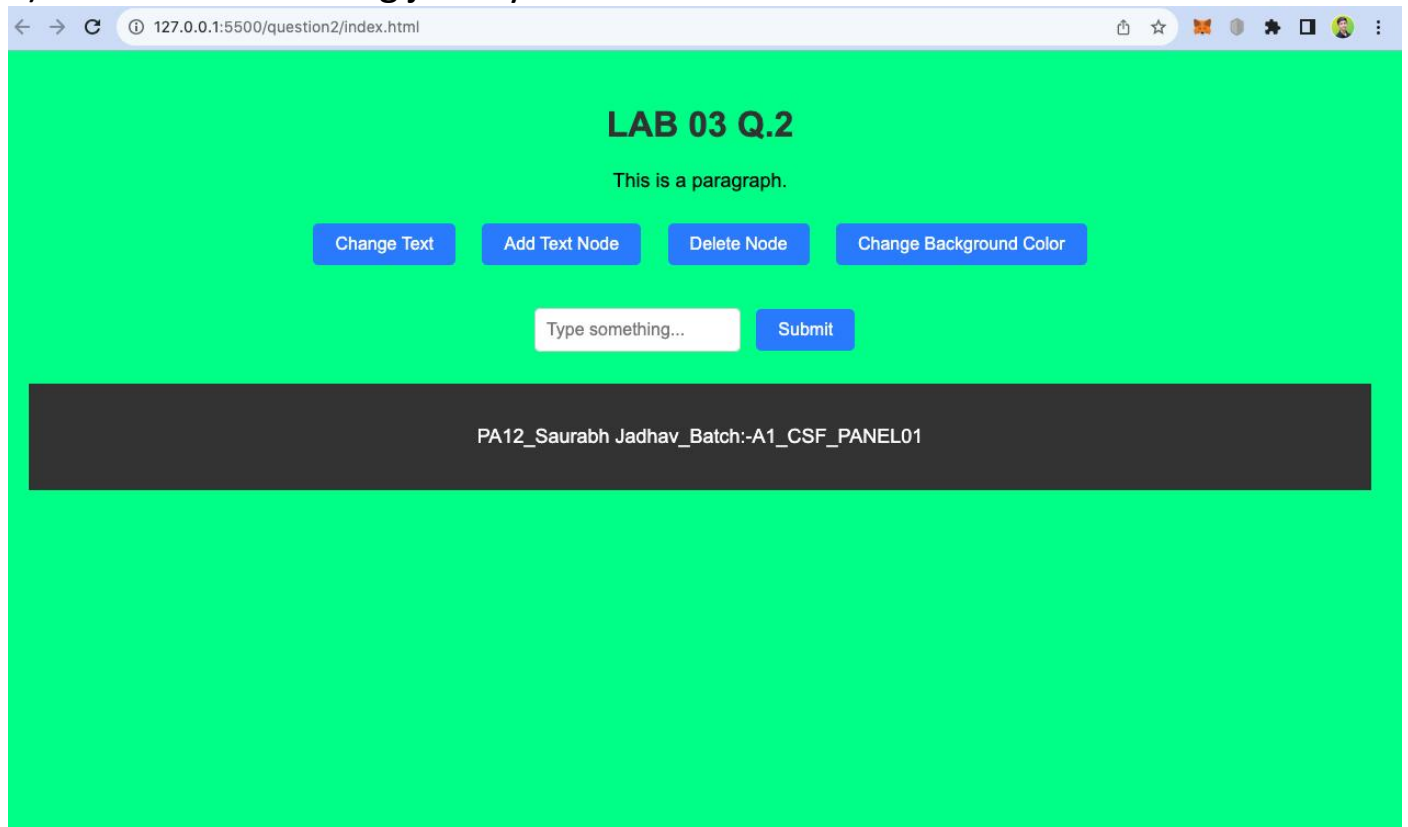
Confirm Password:

Register

Problem Statement 02:-

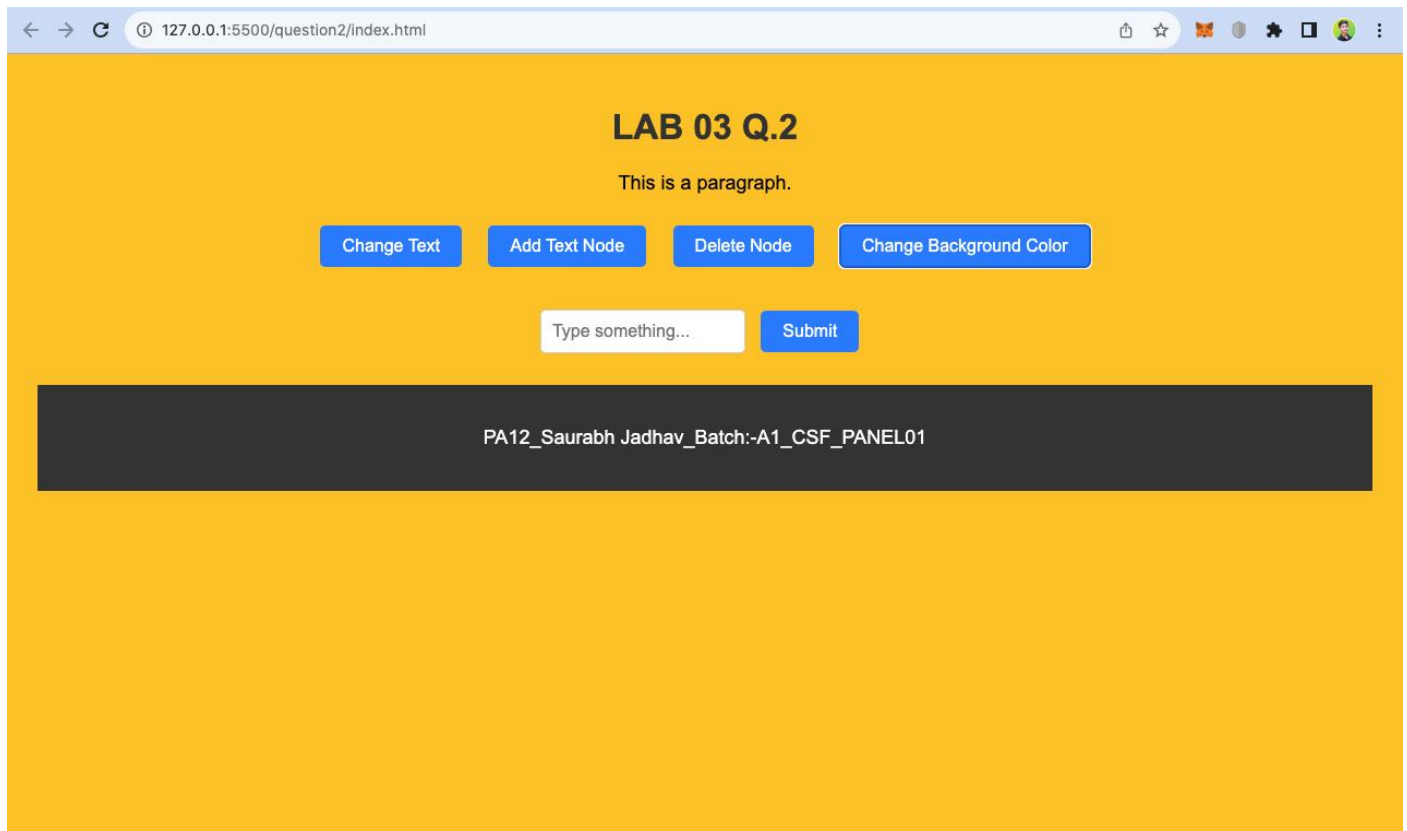
Write a client-side script with JavaScript to access and manipulate Document Object Model (DOM) objects in an HTML web page. Develop a dynamic web page using JavaScript and DOM. Make use of the following for accessing elements.

- a) getElementById, getElementsByTagName, getElementsByClassName
- b) Change the text using innerHTML property
- c) Change the CSS properties like color, position of a particular element on the page
- d) Change the image source after clicking on a button
- e) Add a text node and attach it to a parent node
- f) Delete a node
- g) Include jQuery to perform following operations:
- h) Change button text using jQuery.
- i) Set background-image using jQuery CSS property.
- j) Access HTML form data using jQuery.
- k) Add attribute using jQuery

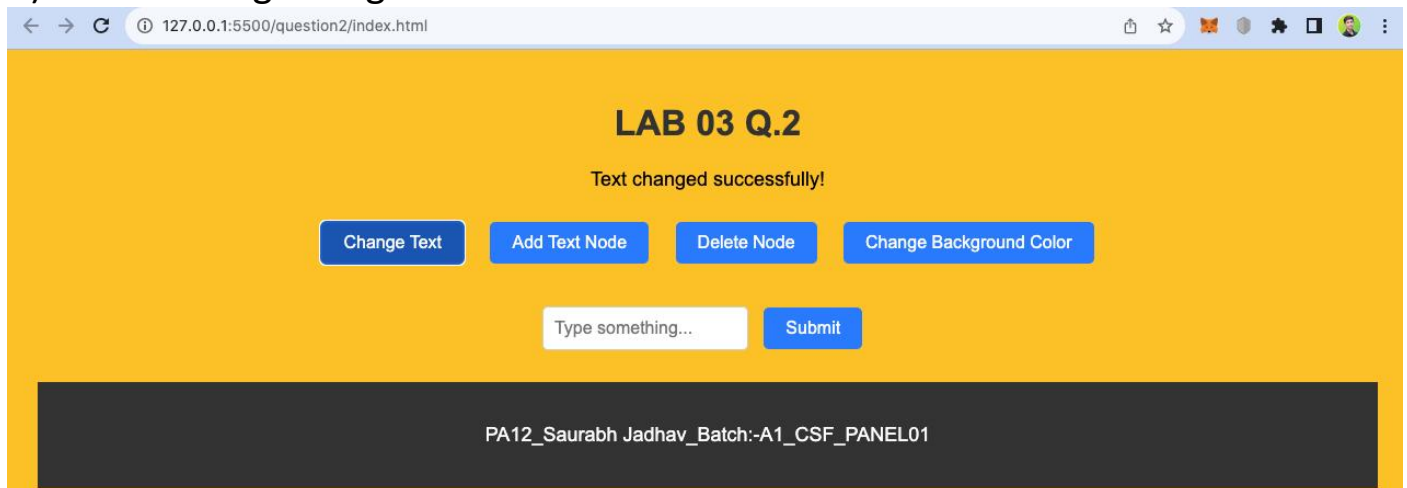


Output Screenshot:-

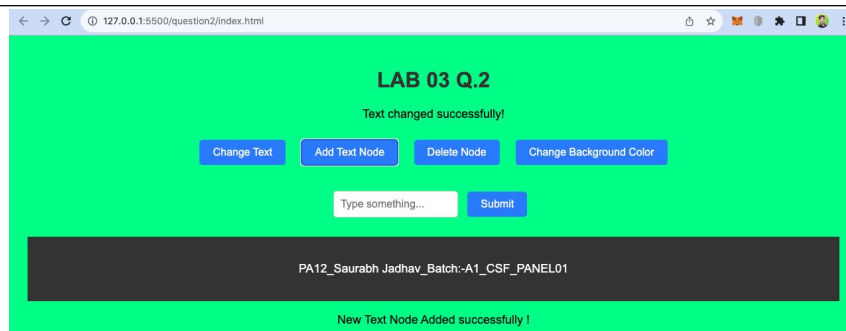
A)After clicking change Background color:-



B)After Clicking change Text:-



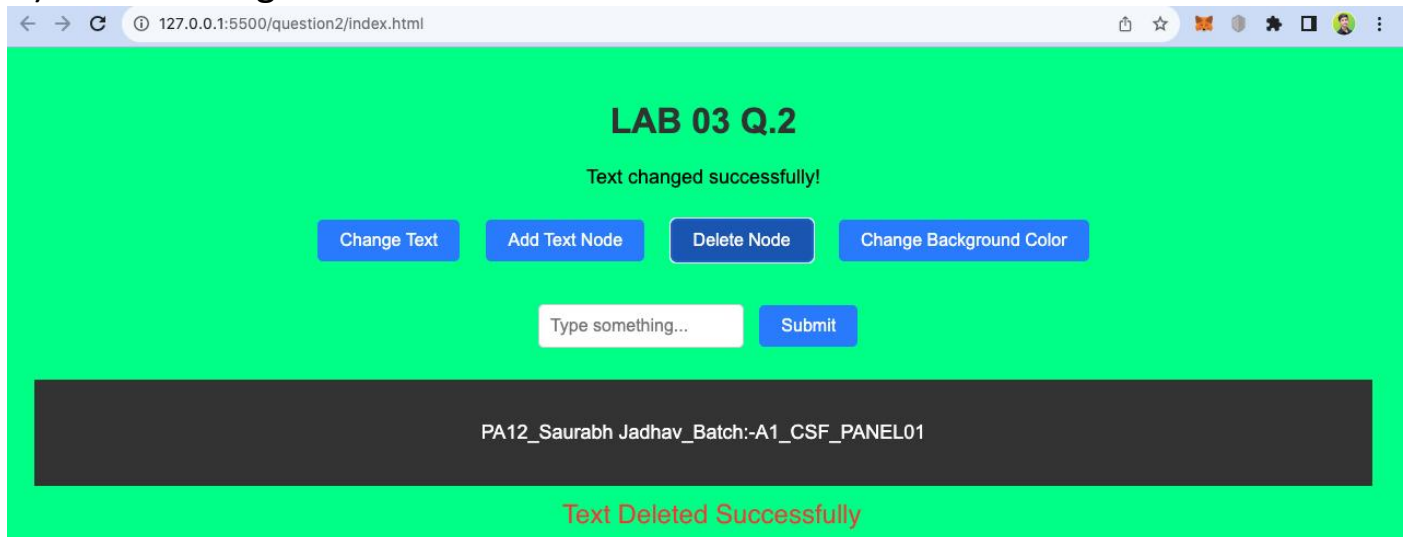
c)After clicking Add Text Node:-



LabAssignment03

FSD

D)After Clicking Delete Node :-



Code Repository Link :-

<https://github.com/Saurabh3207/FSD-Javascript-lab03>