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**PANEL: 1**

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**SUBJECT: FULL STACK DEVELOPMENT**

**LAB ASSIGNMENT- 3**

**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 form validation is.
* To learn basic functioning of DOM objects.
* To learn how to apply various techniques to implement it.

**THEORY:**

* Different types of form validations: There are several types of form validations that you can implement in web or app development to ensure data integrity and user-friendly interactions. Here are some common types:
* Required Field Validation: Ensures that users provide information for mandatory fields.
* Length Validation: Checks that input data, like passwords or usernames, meet specific length criteria.
* Numeric Validation: Verifies that numeric input meets certain criteria, such as being within a specified range.
* Email Validation: Validates email addresses to ensure they have a valid format.
* Date Validation: Ensures that dates entered are in a valid format and within a specific range.

* HTML Document Object Model: The HTML Document Object Model (DOM) is a programming interface for web documents. It represents the structure of an HTML document as a tree-like structure where each element in the document is represented as a node. This tree-like structure allows developers to interact with and manipulate the content and structure of an HTML document using programming languages like JavaScript. The HTML DOM is a fundamental concept in web development that allows developers to interact with and manipulate web page content dynamically, creating responsive and interactive web applications. It provides a structured and standardized way to work with HTML documents using programming languages like JavaScript.
* What is JQuery? Write various JQuery Selectors: jQuery is a fast, lightweight, and feature-rich JavaScript library that simplifies many common tasks in web development, primarily focused on HTML document traversal, manipulation, event handling, and animation. It provides an easier and more concise way to interact with the Document Object Model (DOM) compared to plain JavaScript.

Here are some commonly used jQuery selectors:

* Element Selector: Selects all HTML elements with a specified tag name.

Example: $("p") selects all <p> elements.

* ID Selector: Selects a single element with a specified ID attribute.

Example: $("#myId") selects the element with id="myId".

* Class Selector: Selects all elements with a specified class attribute.

Example: $(".myClass") selects all elements with class="myClass".

* Attribute Selector: Selects elements with a specified attribute and value.

Example: $("[data-type='example']") selects elements with data-type="example".

* Multiple Selectors: Allows you to combine multiple selectors using a comma. Example: $("p, .myClass") selects all <p> elements and elements with class="myClass".

**FAQ’S:**

1. Write 3 reasons why Form validations are important.

Form validations are crucial in web and app development for several reasons:

* Data Integrity: Form validations ensure that the data submitted by users is accurate and consistent. They prevent incorrect or malicious data from entering your system, which helps maintain the quality and reliability of your database.
* User Experience: Validations improve the user experience by providing immediate feedback to users. When users make errors, such as forgetting to fill in a required field or providing an invalid email address, validations can alert them to the issue, reducing frustration and enhancing user satisfaction.
* Security: Form validations play a vital role in security by preventing various types of attacks, such as SQL injection or cross-site scripting (XSS). By validating and sanitizing user input, you can protect your application from potential security vulnerabilities and data breaches.

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

Bootstrap is a popular front-end framework that simplifies the process of designing responsive websites. It provides a set of pre-designed CSS and JavaScript components, along with a responsive grid system, to make it easier for developers to create responsive web layouts. Here's how Bootstrap helps in designing a responsive website:

* Responsive Grid System: Bootstrap's grid system is based on a 12-column layout. It allows you to create flexible and responsive layouts by specifying how many columns a particular element should span on different screen sizes (e.g., mobile, tablet, desktop). This grid system makes it easy to arrange content in a structured and responsive manner.
* Pre-Designed Components: Bootstrap offers a library of pre-designed UI components, such as navigation bars, buttons, forms, and modals. These components are built with responsive design in mind, ensuring that they adapt well to various screen sizes without the need for extensive custom CSS.
* CSS Flexbox and Grid Support: Bootstrap 5 and later versions have embraced CSS Flexbox and Grid layouts, which are powerful tools for creating responsive designs. These technologies are integrated into Bootstrap's core styles, making it easier to create complex responsive layouts.

**PROBLEM STATEMENT:** Design and develop a responsive web page (For example student registration, course enrollment, library management system, online shopping system etc.) using Bootstrap front end framework.

**OUTPUT:**