

Experiment – 3: JavaScript Control Structures and DOM methods

- 1. Aim:** To design a registration form using HTML and CSS. Use JavaScript to validate the user input and handle form submission using control structures.
- 2. Objective:** To understand the basic concepts of Document Object Model and JavaScript including use of Variables, Operators, Conditions and Loops
- 3. Lab objective mapped:** Students will be able to **implement** JavaScript to **develop** interactive web pages (PO3, PO5, PSO3, PSO4)
- 4. Prerequisite:** JavaScript
- 5. Requirements:** The following are the requirements –
 - PC/Laptop, Visual Studio Code, Browser

6. Pre-Experiment Theory:

JavaScript is the programming language of the Web. JavaScript is used to program the behaviour of web pages.

- JavaScript can change HTML content. One of many JavaScript HTML methods is `getElementById()`
- JavaScript can change HTML Attribute Values
- JavaScript can change HTML Styles

A JavaScript function is a block of JavaScript code, that can be executed when "called" for. Scripts can also be placed in external files

JavaScript can "display" data in different ways:

- Writing into an HTML element, using `innerHTML`.
- Writing into the HTML output using `document.write()`.
- Writing into an alert box, using `window.alert()`.
- Writing into the browser console, using `console.log()`.

There are 3 ways to declare a JavaScript variable:

- Using `var`, Using `let` and Using `const`

JavaScript Operators

- Arithmetic Operators
- Assignment Operators
- String Operators
- Comparison Operators
- Logical Operators
- Type Operators
- Bitwise Operators

In JavaScript we have the following conditional statements:

- Use if to specify a block of code to be executed, if a specified condition is true
- Use else to specify a block of code to be executed, if the same condition is false
- Use else if to specify a new condition to test, if the first condition is false
- Use switch to specify many alternative blocks of code to be executed

JavaScript supports different kinds of loops:

- for - loops through a block of code a number of times
- for/in - loops through the properties of an object
- for/of - loops through the values of an iterable object
- while - loops through a block of code while a specified condition is true
- do/while - also loops through a block of code while a specified condition is true

7. Laboratory Exercise:

A. Procedure

Follow the procedure given below to design a registration form and validate fields:

1. Open visual studio code.
2. Open a new file and write HTML code using its elements to design a registration form.
3. Use script tag to write the code to validate fields.
4. Save file as .html
5. Style the form using CSS markup language.
6. To view the output, right click the file and select open with option.
7. Check the output

B. Program Code

Design a registration form using HTML and CSS. Validate the mandatory fields e.g. firstname, lastname and format of password on form submission using control structures and DOM methods.

8. Post Experimental Exercise-

1. Write JavaScript program to find factorial of a number.
2. Write JavaScript program to print Fibonacci series up to 10 numbers.

9. Results/Observations/Program output:

Present the program code and output

10. Conclusion:

Write what was performed in the experiment

Write which all features of JavaScript you used to perform the experiment

11. References:

- HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery) 2Ed., DT Editorial Services
- <https://www.w3schools.com/js/default.asp>
- <https://www.tutorialspoint.com/javascript/index.htm>
- <https://www.youtube.com/watch?v=W6NZfCO5SIk>
- <https://www.youtube.com/watch?v=PkZNo7MFNFg>

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7. Laboratory Exercise:

B. Program Code

Design a registration form using HTML and CSS. Validate the mandatory fields e.g. firstname, lastname and format of password on form submission using control structures and DOM methods.

Code:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
  <title>Experiment 3</title>
  <link rel="stylesheet" href="EXP3.css">
</head>
<script>
  function validateForm(){
    let first=document.forms["myform"]["fname"].value
    if(first == ""){
      alert("Enter your First Name");
      return false;
    }

    let last=document.forms["myform"]["lname"].value
    if(last == ""){
      alert("Enter your Last Name");
      return false;
    }

    let mail = document.forms["myform"]["email"].value
    var validRegex =
    /^[a-zA-Z0-9.!#$%&'*/=?^_`{|}~]+@[a-zA-Z0-9-]+(?:\.[a-zA-Z0-9-]+)*$/;

```

```
if(!validRegex.test(mail))
{
  alert("Email is Invalid")
  return false;
}

let pass = document.forms["myform"]["pass"].value
let cpass = document.forms["myform"]["cpass"].value
if(pass.length < 8){
  alert("Password Should be atleast of 8 character");
  return false;
}
if(pass != cpass)
{
  alert("Password Does not match");
  return false;
}
}
</script>
</head>
<body>
  <div>
    <header class="header-style">
      <h2 style="margin-bottom: 0;">St Francis Institute of Technology</h2>
      <h4 style="margin-top: 0;">
        <address>Mount Poisar, Borivali(W), Mumbai 400103</br>
        Phone No: 022-28908585 Email: sfedu@sfit.ac.in Website:
        www.sfit.ac.in
        </address>
      </h4>
    </div>
  </body>
</html>

```

```

</header>
<section class="form">
  <form class="form-items" name="myForm" action="" onsubmit="return
validateForm()" method = "post">
    <p>
      Name:
      <input type="text" id="fname" name="fname" placeholder="First
Name">
      <input type="text" id="lname" name="lname" placeholder="Last
Name">
    </p>
    <p>
      Email ID: <input type="text" id="email" name="email"
placeholder="Email" >
    </p>
    <p>
      Enter Password:
      <input type="password" id="pass" name="pass"
placeholder="Password"/>
    </p>
    <p>
      Confirm Password:
      <input type="password" id="cpass" name="cpass"
placeholder="Confirm Password"/>
    </p>
    <p>
      <input type="submit" value="Submit">
    </p>
  </form>
</section>
</div>
</body>
</html>

```

Output:

Form Screenshot:

The screenshot shows a web browser window with the address bar displaying 'D:/VishalRMahajan%20IP%2...'. The page title is 'Experiment 3'. The main content of the page is for 'St Francis Institute of Technology', located at 'Mount Poisar, Borivali(W), Mumbai 400103s'. The contact information provided is 'Phone No: 022-28908585' and 'Email: sfedu@sfiu.ac.in Website: www.sfiu.ac.in'. Below this, there is a registration form with the following fields: 'Name:' with sub-fields for 'First Name' and 'Last Name'; 'Email ID:'; 'Enter Password:'; and 'Confirm Password:'. A 'Submit' button is located at the bottom right of the form.

1. When First name is Blank

This screenshot shows the same web browser window as the previous one, but with a validation message displayed. A white box with a black border contains the text 'This page says' in bold, followed by 'Enter your First Name'. The 'First Name' input field is highlighted with a red border, indicating it is required. The rest of the form and the 'Submit' button remain visible below the message box.

2. When Last Name is Blank

The screenshot shows a web browser window with the address bar displaying "D:/VishalRMahajan%20IP%2...". The page title is "Experiment 3". The form contains the following fields and labels:

- Name: Vishal
- Email ID: Email
- Enter Password: Password
- Confirm Password: Confirm Password

A modal dialog box is displayed with the title "This page says" and the message "Enter your Last Name". The dialog has an "OK" button.

3. When Email is not Valid

The screenshot shows a web browser window with the address bar displaying "D:/VishalRMahajan%20IP%2...". The page title is "Experiment 3". The form contains the following fields and labels:

- Name: Vishal
- Email ID: vism
- Enter Password: Password
- Confirm Password: Confirm Password

A modal dialog box is displayed with the title "This page says" and the message "Email is invalid". The dialog has an "OK" button.

4. When Password Length is less than 8

The screenshot shows a web browser window with the address bar displaying "D:/VishalRMahajan%20IP%2...". The page title is "Experiment 3". The form contains the following fields and labels:

- Name: Vishal
- Email ID: vism06@student.sft.ac.in
- Enter Password: ...
- Confirm Password: Confirm Password

A modal dialog box is displayed with the title "This page says" and the message "Password Should be atleast of 8 character". The dialog has an "OK" button.

5. When Password and Confirm Password Does not Match

The screenshot shows a web browser window with the address bar displaying "D:/VishalRMahajan%20IP%2...". The page title is "Experiment 3". The form contains the following fields and labels:

- Name: Vishal
- Email ID: vism06@student.sft.ac.in
- Enter Password:
- Confirm Password:

A modal dialog box is displayed with the title "This page says" and the message "Password Does not match". The dialog has an "OK" button.

Validation of Form Created in EXP2

Code:

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
  <title>Experiment 2</title>
  <link rel="stylesheet" href="EXP2.css">
</script>
  function validateForm() {
    let first = document.forms["myform"]["fname"].value;
    let middle = document.forms["myform"]["mname"].value;
    let last = document.forms["myform"]["lname"].value;

    if (first == "" || middle == "" || last == "") {
      if (first == "") {
        alert("Enter your First Name");
        return false;
      }
      if (middle == "") {
        alert("Enter your Middle Name");
        return false;
      }
      if (last == "") {
        alert("Enter your Last Name");
        return false;
      }
    }

    let mail = document.forms["myform"]["email"].value
    var validRegex =
    /^[a-zA-Z0-9.!#$%&'*/=?^`{}~]+@[a-zA-Z0-9-]+\.(?:[a-zA-Z0-9-]+)*$/;
    if (!validRegex.test(mail)) {
      alert("Email is Invalid")
      return false;
    }

    let phone = document.forms["myform"]["phone"].value;
    if (phone.length != 10) {
      alert("Enter a valid Phone Number");
      return false;
    }

    let scorecard = document.forms["myform"]["scorecard"].value;
    if (scorecard == "") {
      alert("Upload your CET Score Card");
      return false;
    }

    let pass = document.forms["myform"]["pass"].value
    let cpass = document.forms["myform"]["cpass"].value
    if (pass.length < 8) {
      alert("Password Should be atleast of 8 character");
      return false;
    }
    if (pass != cpass) {
      alert("Password Does not match");
      return false;
    }
  }
</script>
</head>
<body>
  <div>
    <header class="header-style">
      <h2 style="margin-bottom: 0;">St Francis Institute of
      Technology</h2>
      <h4 style="margin-top: 0;">
        <address>Mount Poisur, Borivali(W), Mumbai 400103</br>
        Phone No: 022-28908585 Email: sfedu@sfit.ac.in Website:
        www.sfit.ac.in
      </address>
    </h4>
  </header>
  <section class="form">
    <div class="margin-top: 2em">
      <b>Admission enquiry Registration</b></div>
    </div>
  </body>
</div>
</div>
```


1. When Phone Number length is not equal to 10

A screenshot of a web browser showing a form titled "Experiment 2" at the URL "http://127.0.0.1:5500/EXP2withvalid.html". The form contains fields for Address, City, Email ID, Gender, Date of Birth, Choice of Branch, Upload CET score card, Choose Username, Enter Password, and Confirm Password. A modal dialog box is displayed in the center, stating "127.0.0.1:5500 says Enter a valid Phone Number" with an "OK" button.

2. When Cet score card is not uploaded

A screenshot of a web browser showing the same form as in the first image. In this instance, the "Choice of Branch" field has the "INFT" option selected. The modal dialog box now states "127.0.0.1:5500 says Upload your CET Score Card" with an "OK" button.

```
<input type="checkbox" name="INFT" /> CMPN
<input type="checkbox" name="INFT" /> EXTC
<input type="checkbox" name="INFT" /> ELEC
<input type="checkbox" name="INFT" /> AIDS
</p>
<p>
  Upload CET score card:
  <input type="file" name="scorecard" />
</p>
<p>
  Choose Username:
  <input type="text" id="username" name="username"
placeholder="Username" />
</p>
<p>
  Enter Password:
  <input type="password" id="pass" name="pass"
placeholder="Password" />
</p>
<p>
  Confirm Password:
  <input type="password" id="cpass" name="cpass"
placeholder="Confirm Password" />
</p>
<p>
  <input type="submit" value="Submit">
</p>
</form>
</section>
</div>
</body>
</html>
```

Validation of Name , email ,password is same as earlier.

New validation is :