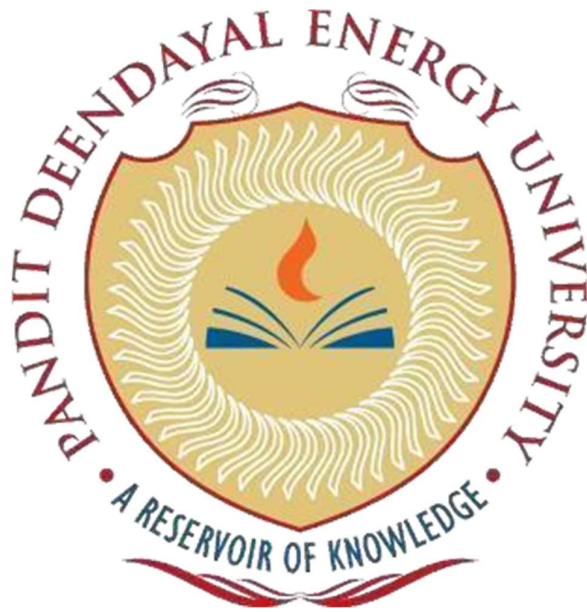**Pandit Deendayal Energy University,**

**Gandhinagar**

**School of Technology**

**Department of Computer Science & Engineering**

# Introduction to Web Technology (23CP306P)



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# Practical 2

**Aim:** Create interactive webpages using Javascript.

**Hardware Requirement:** HP Laptop

**Software Requirement:** Notepad Version 22H2 / VSCode

**Knowledge Requirement:** Basic understanding of HTML, CSS, Javascript.

## Theory:

JavaScript is a versatile and widely-used programming language primarily known for its role in web development. It enables the creation of interactive and dynamic content on websites, making it an essential tool for modern web applications.

JavaScript is a high-level, interpreted programming language that is primarily used for front-end web development. It was first introduced by Netscape in 1995 and has since become one of the core technologies for building websites and web applications.

One of JavaScript's key features is its ability to add interactivity to web pages. It enables developers to create dynamic elements that respond to user actions, such as form validation, image sliders, and interactive maps. This interactivity greatly enhances the user experience, making websites more engaging and user-friendly.

JavaScript operates on the client-side, meaning it runs within the user's web browser. This allows for rapid responses and reduces the need for constant communication with the server. This client-side nature is what distinguishes JavaScript from server-side languages like Python or Ruby.

Moreover, JavaScript is highly versatile. While it is predominantly employed for front-end development, its usage has expanded into server-side scripting with the advent of platforms like Node.js. This flexibility allows developers to utilize JavaScript for a wide range of applications, from creating dynamic web pages to building entire web applications.

## Code and Output:

### 1. DOM Properties:

**Code-**

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>DOM</title>
</head>
```

```
<body>
    <input type="button" onclick="Hello()" value="SUBMIT">
    <script src="./firstjs.js"></script>
</body>
</html>
```

firstjs.js

```
function Hello()
{
    document.write("Hello World");
}
```

## Output-

───────────────────────────────────────

SUBMIT

───────────────────────────────────────

Hello World

## 2. Conditionals and loops:

## Code-

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

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Javascript</title>
</head>
```

```
<body>
  <script>
    //conditionals and loops
    a = 10
    if (a > 10) {
      document.write("Value of a greater than 10 <br>");
    }
    else if (a == 10) {
      document.write("Value of a equal to 10 <br>");
    }
    else {
      document.write("Value of a lesser than 10 <br>");
    }

    //for loop
    for (i = 0; i < a; i++) {
      document.write((i + 1) + "<br>");
    }
    document.write("<br>");

    //while loop
    x = 0
    while (x < a) {
      document.write((x + 1) + "<br>");
      x++;
    }
    document.write("<br>");

    //do-while loop
    x = 0
    do {
      document.write((x + 1) + "<br>");
      x++;
    } while (x < a)
    document.write("<br>");

  </script>
  <!-- <button onclick="alertbox();">Alert box</button>
  <button onclick="confirmbox()">Confirm box</button>
  <button onclick="promptbox()">Prompt box</button> -->
</body>

</html>
```

**Output-**

Value of a equal to 10
1
2
3
4
5
6
7
8
9
10

1
2
3
4
5
6
7
8
9
10

1
2
3
4
5
6
7
8
9
10

### 3. Alert box, Prompt box,

**Code-**

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

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Javascript</title>
</head>

<body>
    <script>
        function alertbox() {
                alert("Donot click
                me!!!")
        }

        function confirmbox() {
          var txt;
          if (confirm("Press a button!")) {
            document.write("You pressed OK!")
          } else {
            document.write("You pressed cancel!!!")
          }
        }
        function promptbox() {
          let text;
          let person = prompt("Please enter your name:", "Ravi Jamanbhai Makwana");
```
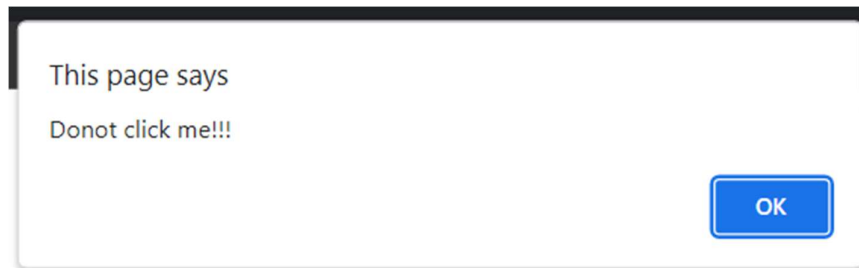
```
        if (person == null || person == "") {
            document.write("You clicked cancel!!");
        } else {
            document.write("Hello " + person + "! How are you today?");
        }
    }

</script>
<button onclick="alertbox();">Alert box</button>
<button onclick="confirmbox()">Confirm box</button>
<button onclick="promptbox()">Prompt box</button>
</body>

</html>
```
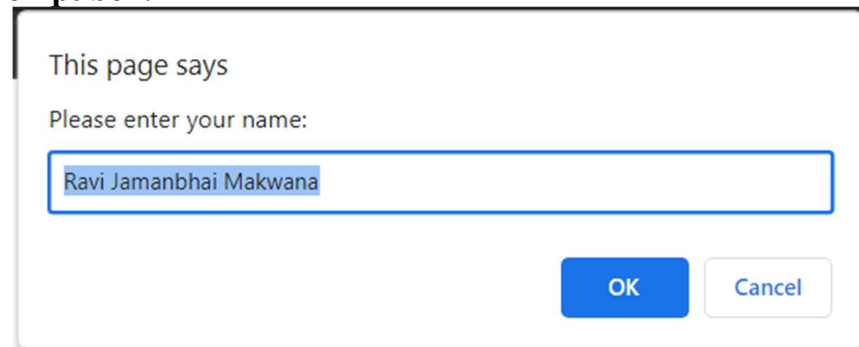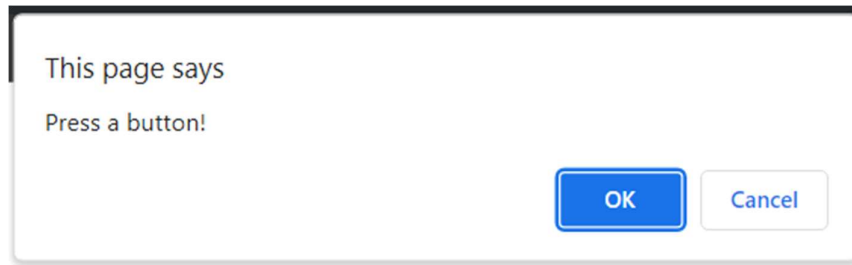
**Output-**

a. **Alert box:**



b. **Prompt box:**



Hello Ravi Jamanbhai Makwana! How are you today?

c. **Confirm Box-**

This page says

Press a button!

OK  Cancel

You pressed OK!

## 4. Javascript Date:

**Code-**

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

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>

<body>
    <h1>Today's Date:</h1>
    <script>
        var currentDate = new Date();
        document.write(currentDate + "<br><br>");
        document.write("getDay(): " + currentDate.getDay() + "<br><br>");
        document.write("getMonth(): " + currentDate.getMonth() + "<br><br>");
        document.write("getDate(): " + currentDate.getDate() + "<br><br>");
        document.write("getFullYear(): " + currentDate.getFullYear() + "<br><br>");
        document.write("getHours(): " + currentDate.getHours() + "<br><br>");
        document.write("getMinutes(): " + currentDate.getMinutes() + "<br><br>");
        document.write("getSeconds(): " + currentDate.getSeconds() + "<br><br>");
    </script>
</body>

</html>
```

**Output-**

# Today's Date:

Sat Oct 14 2023 23:33:02 GMT+0530 (India Standard Time)

getDay(): 6

getMonth(): 9

getDate(): 14

getFullYear(): 2023

getHours(): 23

getMinutes(): 33

getSeconds(): 2

## 5. Javascript can change HTML

**Code-**
```html
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>

<body>
    <h1>Javascript can change HTML content</h1>
    <p id="p1">Hello World!</p>

    <script>

        document.getElementById("p1").innerHTML = "New text!";

    </script>

    <p>The paragraph above was changed by a script.</p>

</body>

</html>
```

**Output-**

# Javascript can change HTML content

New text!

The paragraph above was changed by a script.

## 6. Form Validation:

**Code-**

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

<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Form Validation Example</title>
  <style>
    .error {
      color: red;
    }
  </style>
</head>

<body>

  <h2>Form Validation Example</h2>

  <form id="myForm" onsubmit="return validateForm()" method="post">

    <label for="name">Name:</label>
    <input type="text" id="name" name="name">
    <span id="nameError" class="error"></span><br>

    <label for="email">Email:</label>
    <input type="text" id="email" name="email">
    <span id="emailError" class="error"></span><br>

    <label for="password">Password:</label>
    <input type="password" id="password" name="password">
    <span id="passwordError" class="error"></span><br>
```

```html
    <input type="submit" value="Submit">

</form>

<script>
    function validateForm() {
        var name = document.getElementById("name").value;
        var email = document.getElementById("email").value;
        var password = document.getElementById("password").value;
        var nameError = document.getElementById("nameError");
        var emailError = document.getElementById("emailError");
        var passwordError = document.getElementById("passwordError");

        // Reset error messages
        nameError.innerHTML = "";
        emailError.innerHTML = "";
        passwordError.innerHTML = "";

        var isValid = true;

        if (name === "") {
            nameError.innerHTML = "Name is required";
            isValid = false;
        }

        if (email === "") {
            emailError.innerHTML = "Email is required";
            isValid = false;
        } else if (!isValidEmail(email)) {
            emailError.innerHTML = "Invalid email address";
            isValid = false;
        }

        if (password === "") {
            passwordError.innerHTML = "Password is required";
            isValid = false;
        } else if (password.length < 6) {
            passwordError.innerHTML = "Password must be at least 6 characters long";
            isValid = false;
        }

        return isValid;
    }

    function isValidEmail(email) {
        var emailRegex = /^[a-zA-Z0-9._-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,4}$/;
        return emailRegex.test(email);
```

```
    }
  </script>

</body>

</html>
```

**Output-**

## Form Validation Example

Name: [                    ] Name is required
Email: [                    ] Email is required
Password: [                  ] Password is required
[ Submit ]

**Conclusion-**

In this lab session, we delved into fundamental JavaScript principles crucial for crafting dynamic web pages. This encompassed employing message boxes such as alert(), confirm(), and prompt() for presenting messages and gathering user input. Additionally, we tackled the intricacies of managing dates and times utilizing the Date object. Moreover, we delved into DOM manipulation techniques, demonstrating how to alter HTML content and locate specific HTML elements through the document object. Lastly, we applied JavaScript to validate form inputs, guaranteeing that user-provided information adheres to predefined criteria.

**References-**

- https://www.w3schools.com/js/