

Experiment No. 2

Aim: To implement simple JavaScript Programs.

Theory:

1. Functions in JavaScript

What is a Function?

A function is a reusable block of code that performs a specific task. It can take inputs (called parameters), process them, and return an output. Functions help organize code, avoid repetition, and make programs easier to understand and maintain.

Example of a Function

```
function add(a, b) { return a +  
    b; }
```

```
const result = add(3, 5);  
console.log(result);
```

Types of Functions

1. Named Functions:

- Defined using the function keyword.
- Can be called before or after their definition (due to hoisting).

2. Anonymous Functions:

- Functions without a name.
- Often used as callbacks or assigned to variables. `const`
`greet = function(name) {`

```
    return Hello, ${name}!;

};
```

3. Arrow Functions (ES6):

- Shorter syntax for writing functions.
- Do not have their own this

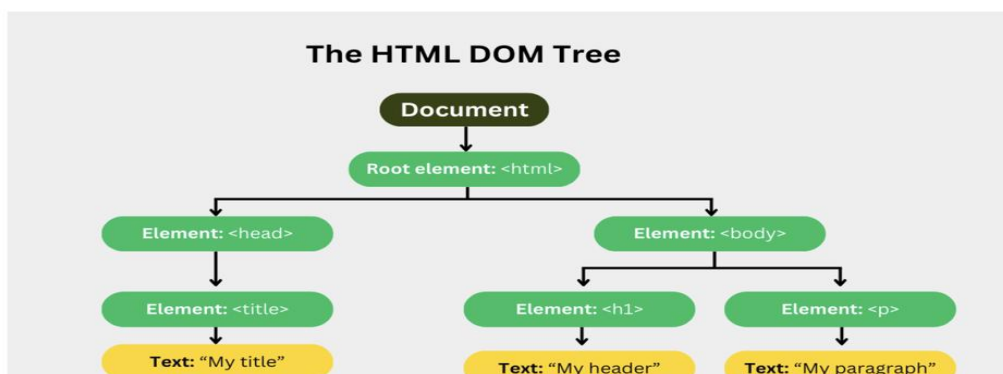
```
context. const greet = (name) =>
Hello, ${name}!;
```

2. What is the DOM?

The DOM is a W3C (World Wide Web Consortium) standard.

The DOM defines a standard for accessing documents:

- "The W3C Document Object Model (DOM) is a platform and language-neutral interface that allows programs and scripts to dynamically access and update the content, structure, and style of a document."
- The W3C DOM standard is separated into 3 different parts:
- Core DOM - standard model for all document types
- XML DOM - standard model for XML documents
- HTML DOM - standard model for HTML documents



3.Event Handling In Javascript:

An event listener is a function that waits for a specific event (e.g., a click, keypress, or form submission) to occur on a webpage element. When the event occurs, the listener executes a callback function to handle the event.

Here are some method for event handling:

- ☐ onclick – Fires when an element is clicked.
- ☐ addEventListener("click", ...) – Attaches a click event listener.
- ☐ onmouseover – Fires when the mouse enters an element.
- ☐ keydown – Detects when a key is pressed.
- ☐ onsubmit – Triggers when a form is submitted.
- ☐ onload – Fires when the page or an element loads.
- ☐ onchange – Detects changes in an input field.
- ☐ onfocus – Fires when an input gains focus.

Programs:

Digital Clock:

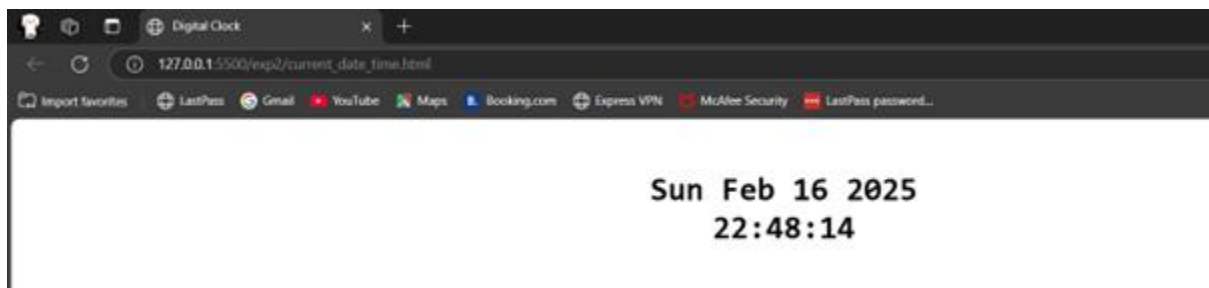
```
<html lang="en">                                font-weight: bold;
<head>                                           }
  <meta charset="UTF-8">                        </style>
  <meta name="viewport"                         </head>
  content="width=device-width, initial-
  scale=1.0">
  <title>Digital Clock</title>
  <style>
    body {
      font-family: monospace;
      text-align: center;
      margin-top: 50px;
    }
    #time,#date{
      font-size: 2rem;
    }
  </style>
  <script>
    function updateClock() {
      let now = new Date();
      document.getElementById('date').t
      extContent = now.toString();
    }
  </script>
</body>
<div id="date"></div>
<div id="time"></div>
```

```

        let hours = now.getHours();
        let minutes = now.getMinutes().toString().padStart(2, '0');
        let seconds = now.getSeconds().toString().padStart(2, '0');

        document.getElementById('time').textContent = `${hours}:${minutes}:${seconds}`;
        updateClock();
        setInterval(updateClock, 1000);
    </script>
</body>
</html>

```



Change Background color:

```

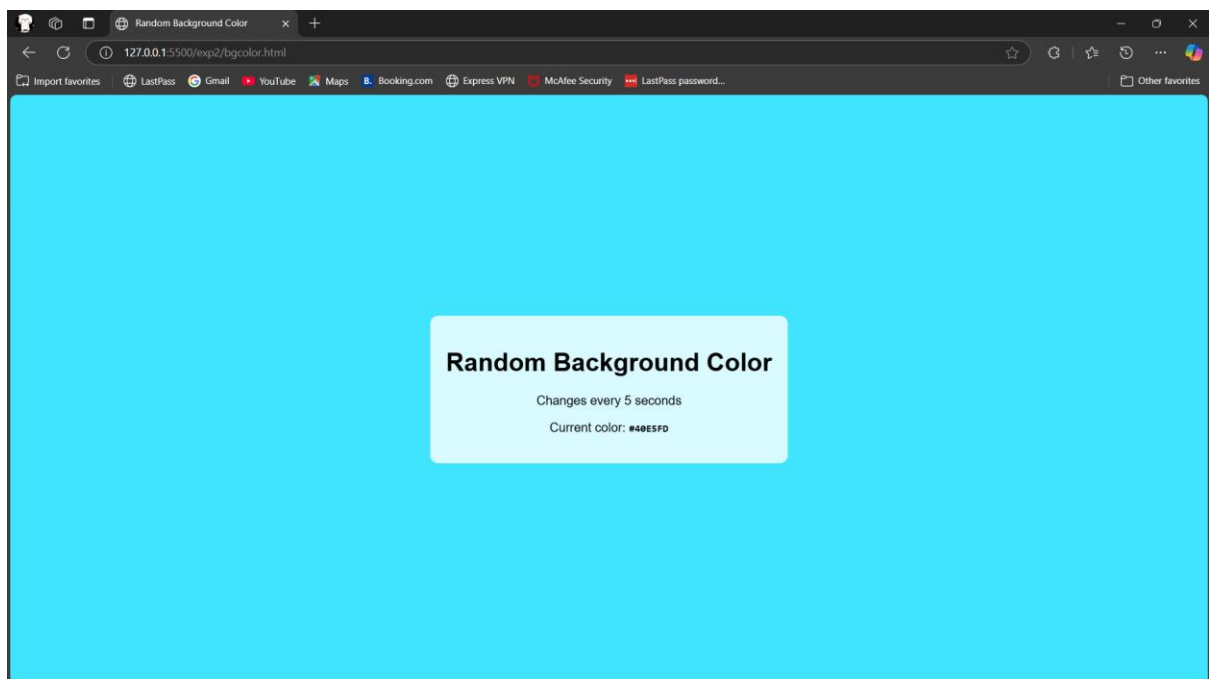
<html>
<head>
    <title>Random Background Color</title>
    <style>
        body {
            font-family: Arial, sans-serif;
            display: flex;
            justify-content: center;
            align-items: center;
            height: 100vh;
            margin: 0;
            transition: background-color 1s ease;
        }
        .content {
            background-color: rgba(255, 255, 255, 0.8);
            padding: 20px;
            border-radius: 10px;
            text-align: center;
        }
    </style>
</head>
<body>
    <div class="content">
        <h1>Random Background Color</h1>
    </div>
</body>
</html>

```

```

    <p>Changes every 5 seconds</p>
    <p>Current color: <span id="current-
color"></span></p>
</div>
<script>
    function randmColor() {
        const letters =
'0123456789ABCDEF';
        let color = '#';
        for (let i = 0; i < 6; i++) {
            color +=
letters[Math.floor(Math.random() * 16)];
        }
        return color;
    }
    function setbg() {
        const newColor = randmColor();
        document.body.style.backgroundC
olor = newColor;
        document.getElementById('current-
color').textContent = newColor;
    }
    setbg();
    setInterval(setbg, 5000);
</script>
</body>
</html>

```



Basic Calculator

```
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport"
content="width=device-width, initial-
scale=1.0">
  <title>Basic Calculator</title>
  <style>
    body {
      font-family: Arial, sans-serif;
      text-align: center;
      margin: 50px;
    }
    input, select, button {
      margin: 5px;
      padding: 8px;
      font-size: 16px;
    }
    .result {
      font-size: 18px;
      font-weight: bold;
      margin-top: 10px;
    }
  </style>
</head>
<body>
  <h2>Basic Calculator</h2>
  <input type="number" id="num1"
placeholder="Enter Number 1">
  <input type="number" id="num2"
placeholder="Enter Number 2">
  <select id="operation">
    <option value="+">+</option>
    <option value="-">-</option>
    <option value="*">*</option>
    <option value="/">/</option>
  </select>
  <button
onclick="calculate()">Calculate</button>
  <p class="result" id="result"></p>
  <script>
    function calculate() {
      let a =
parseFloat(document.getElementById("nu
m1").value);
      let b =
parseFloat(document.getElementById("nu
m2").value);
      let operation =
document.getElementById("operation").va
lue;
      let c;
      if (isNaN(a) || isNaN(b)) {
        document.getElementById("resu
lt").innerHTML = "Please enter valid
numbers!";
        return;
      }
    }
  </script>
</body>
```

```

    }

    switch (operation) {
        case '+': c = a + b; break;
        case '-': c = a - b; break;
        case '*': c = a * b; break;
        case '/':
            if (b !== 0) {
                c = a / b;
            } else {
                document.getElementById(
"result").innerHTML = "Cannot divide by
zero!";

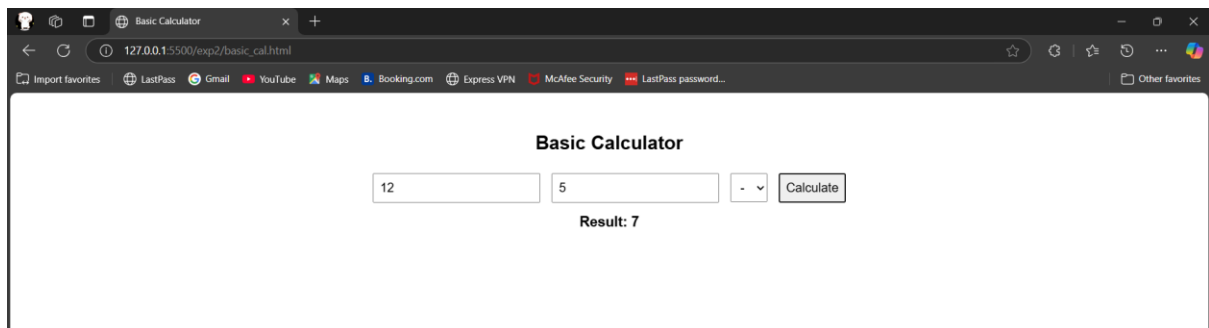
                return;
            }
            default:
                document.getElementById("re
sult").innerHTML = "Invalid operation!";

                return;
            }
    }

    document.getElementById("result"
).innerHTML = `Result: ${c}`;
}

</script>
</body>
</html>

```



Bulb On/Off

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

```
<head>
```

```
  <meta charset="UTF-8">
```

```
    <meta name="viewport"
content="width=device-width, initial-
scale=1.0">
```

```
  <title>Bulb Toggle</title>
```

```
<style>
```

```
  body {
```

```
    text-align: center;
```

```
    font-family: Arial, sans-serif;
```

```
    margin: 50px;
```

```
  }
```

```
  button {
```

```
    padding: 8px 15px;
```

```
    font-size: 16px;
```

```
    cursor: pointer;
```

```
  }
```

```
</style>
```

```
</head>
```

```
<body>
```

```
  <br><br>
```

```
  <button onclick="bulb_on()">Turn on
the bulb</button>
```

```
  <button onclick="bulb_off()">Turn off
the bulb</button>
```

```
<script>
```

```
  function bulb_on() {
```

```
    document.getElementById("on_off"
).src = "bulb_on.jpg";
```

```
  }
```

```
  function bulb_off() {
```

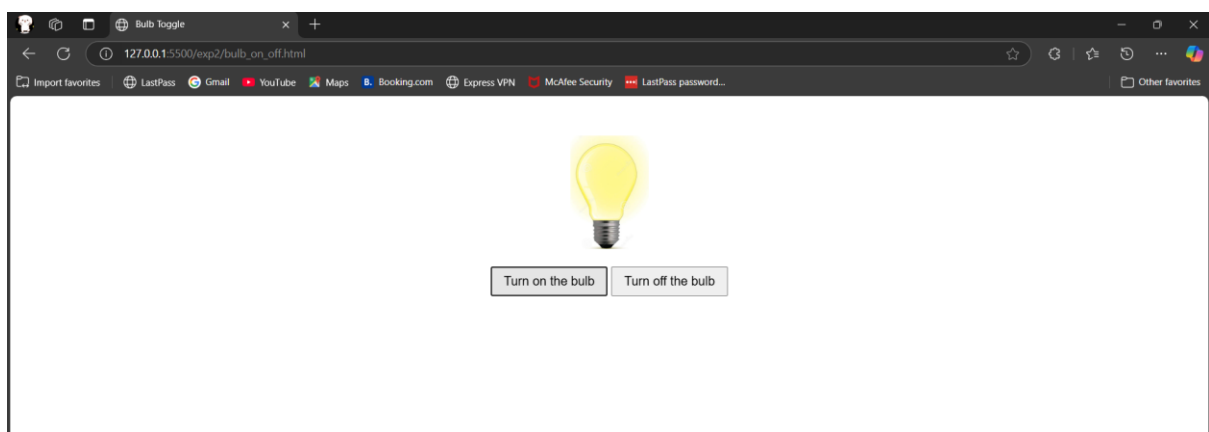
```
    document.getElementById("on_off"
).src = "bulb_off.jpg";
```

```
  }
```

```
</script>
```

```
</body>
```

```
</html>
```



Show/Hide Text On Button Click

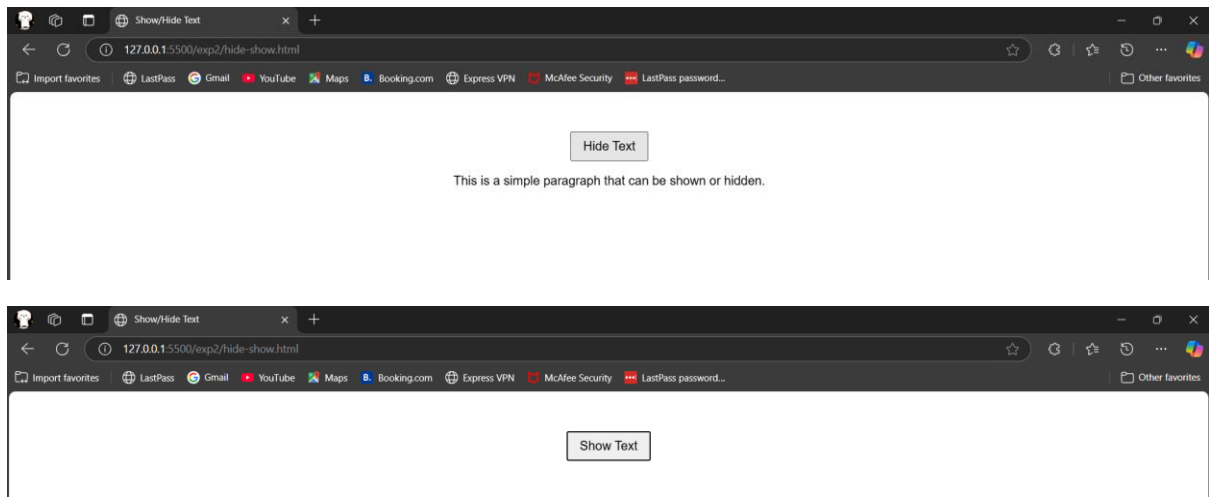
```
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport"
content="width=device-width, initial-
scale=1.0">
  <title>Show/Hide Text</title>
  <style>
    body {
      text-align: center;
      font-family: Arial, sans-serif;
      margin: 50px;
    }
    button {
      padding: 8px 15px;
      font-size: 16px;
      cursor: pointer;
    }
  </style>
</head>
<body>
```

```
      <button id="toggleBtn"
onclick="showhide()">Show
Text</button>

  <p id="text" style="display: none;">This
is a simple paragraph that can be shown or
hidden.</p>

  <script>
    let btn =
document.getElementById("toggleBtn");
    let para =
document.getElementById("text");

    function showhide() {
      if (para.style.display === "none") {
        para.style.display = "block";
        btn.textContent = "Hide Text";
      } else {
        para.style.display = "none";
        btn.textContent = "Show Text";
      }
    }
  </script>
</body>
</html>
```



Interactivity In Exp1

```

<html>
<head>
  <title>FAQ Page</title>
  <style>
    body {
      font-family: Arial, sans-serif;
      text-align: center;
      background-color: #f4f4f4;
      margin: 50px;
    }
    .container {
      width: 50%;
      margin: auto;
      background: white;
      padding: 20px;
      border-radius: 8px;
    }
    h2 {
      color: #333;
    }
    .faq-item {
      text-align: left;
      margin-top: 15px;
      padding: 10px;
      border-bottom: 1px solid #ddd;
      cursor: pointer;
      transition: 0.3s ease-in-out;
    }
    .faq-item:last-child {
      border-bottom: none;
    }
    .faq-item:hover {
      background: #e6f7ff;
    }
    .faq-item p {
      display: none;
    }
  </style>
</head>
<body>
  <div class="container">
    <h2>FAQ Page</h2>
    <div class="faq-item">
      <p>Question 1</p>
      <p>Answer 1</p>
    </div>
    <div class="faq-item">
      <p>Question 2</p>
      <p>Answer 2</p>
    </div>
  </div>
</body>
</html>

```

```

        margin-top: 5px;
    }
    .faq-item:hover p {
        display: block;
    }
    .button {
        padding: 10px 15px;
        background: #007BFF;
        color: white;
        border: none;
        cursor: pointer;
        border-radius: 5px;
        margin-top: 15px;
        transition: 0.3s;
    }
    .button:hover {
        background: #0056b3;
    }
</style>
</head>
<body>

    <div class="container">

        <h2>Frequently Asked
Questions</h2>

        <div id="faq-list">

            <div class="faq-item">

                <h3>What is this page
about?</h3>

```

```

        <p>This page dynamically adds
FAQs using JavaScript DOM.</p>

    </div>

</div>

        <button class="button"
onclick="addFAQ()">Add FAQ</button>

    </div>

    <script>

        function addFAQ() {

            let question = prompt("Enter the
FAQ question:");

            let answer = prompt("Enter the FAQ
answer:");

            if (question && answer) {

                let faqit =
document.createElement("div");

                faqit.classList.add("faq-item");

                let h3 =
document.createElement("h3");

                h3.textContent = question;

                let p =
document.createElement("p");

                p.textContent = answer;

                faqit.appendChild(h3);
                faqit.appendChild(p);

```

```

    }

    document.getElementById("faq-
list").appendChild(faqit);

    } else {

        alert("Both question and answer
are required!");

    }
}
</script>
</body>
</html>

```

