ES5/ES6 Features

Aim -

To understand various ES5/ES6 features and use them to design basic application like a dynamic table, calculator, validating IPv4 address etc.

Problem 1 - Multiplication Table

Display multiplication table for the given number.

Code –

```
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>Tables</title>
</head>
<body>
   <form>
      <label for="num">Enter Number: </label>
      <input type="number" id="num" name="num" required>
      <button type="submit" onclick="getTable()">Get Table</button>
   </form>
   <p id = "demo"></p>
   <script>
      function getTable(){
         event.preventDefault();
         var ans="";
         var n=document.getElementById("num").value;
         if (n===""){
            ans="Enter a number";
         } else{
            for (let i=1; i<=10; i++){
               ans = ans + n + " * " + i + " = " + (n*i) + "<br>";
               console.log(ans);
            }
         }
         document.getElementById("demo").innerHTML = ans;
      }
   </script>
</body>
</html>
```

Output –

Enter Number: 9 Get Table

9 * 1 = 9
9 * 2 = 18
9 * 3 = 27
9 * 4 = 36
9 * 5 = 45
9 * 6 = 54
9 * 7 = 63
9 * 8 = 72
9 * 9 = 81
9 * 10 = 90

Problem 2 – Table of Tables

Create a Java script code to generate a multiplication table asking the user to enter number of rows and columns. If user enters nothing or 0 then display multiplication table with 10 rows and 10 columns.

Code –

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Table of tables</title>
</head>
<body>
    <form>
        <label for="rows">Enter Rows: </label>
        <input type="number" id="rows" name="rows" required>
        <label for="cols">Enter Columns: </label>
        <input type="number" id="cols" name="cols" required>
        <button type="submit" onclick="getTable()">Get Table</button>
    </form>
    <table id="multiplication-table" border="1"></table>
    <script>
        function getTable() {
            event.preventDefault();
            let rows = document.getElementById('rows').value;
```

```
        let col = document.getElementById('cols').value;

        rows = (rows && rows > 0) ? parseInt(rows) : 10;
        col = (col && col > 0) ? parseInt(col) : 10;

        let table = document.getElementById('multiplication-table');
        table.innerHTML = '';

        for (let i = 1; i <= rows; i++) {
            let row = table.insertRow();
            for (let j = 1; j <= col; j++) {
                let cell = row.insertCell();
                cell.textContent = i * j;
            }
        }
    }
  </script>
</body>
</html>
```

Output –

Enter Rows: 8 Enter Columns: 9 Get Table

1	2	3	4	5	6	7	8	9
2	4	6	8	10	12	14	16	18
3	6	9	12	15	18	21	24	27
4	8	12	16	20	24	28	32	36
5	10	15	20	25	30	35	40	45
6	12	18	24	30	36	42	48	54
7	14	21	28	35	42	49	56	63
8	16	24	32	40	48	56	64	72

Problem 3 – Temperature Conversion

Write a java script function which converts Fahrenheit to Celsius.

Code –

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

```
    <form>
      <label for="fah">Enter temperature in Fahrenheit: </label>
      <input type="number" id="fah" name="fah" required>
      <button type="submit" onclick="toCelsius()">Convert to Celsius</button>
    </form>
    <p id="ans"></p>
    <script>
      function toCelsius(){
        event.preventDefault();
        let f = document.getElementById("fah").value;
          document.getElementById("ans").innerHTML = "Equivalent temperature in degree Celsius is: "+ ((f-32)*(5/9));
      }
    </script>
</body>
</html>
```

Output –

Enter temperature in Fahrenheit: 104 Convert to Celsius

Equivalent temperature in degree Celsius is: 40

Problem 4 – Add Hyphens

Write a JavaScript program which accept a number as input and insert dashes (-) between each two even numbers. For example if you accept 025468 the output should be 0-254-6-8.

Code –

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Format even</title>
</head>
<body>
    <form>
      <label for="string">Enter string: </label>
      <input type="number" id="string" name="string" required>
      <button type="submit" onclick="addHyp()">Convert to Dashed</button>
    </form>
```

```
    <p id="answer"></p>
    <script>
        addHyp = () => {
            event.preventDefault();
            var ans = "";
            let str = document.getElementById("string").value;
            for (let i=0; i<str.length-1; i++){
                ans+=str[i];
                if ((Number(str[i])%2==0) && (Number(str[i+1])%2==0)){
                    ans+="-";
                }
            }
            ans+=str[str.length-1];
            document.getElementById("answer").innerHTML = ans;
        }
    </script>
</body>
</html>
```

Output –

Enter string: 1245686 Convert to Dashed

12-456-8-6

Problem 5 – Most frequent element

Write a JavaScript program to find the most frequent item of an array.
Sample array : var arr1=[3, “a”, “a”, “a”, 2, 3, “a”, 3, “a”, 2, 4, 9, 3];
Sample Output : a (5 times)

Code –

```
function findMostFrequentItem(arr) {
    let frequency = {};

    for (let i = 0; i < arr.length; i++) {
        let item = arr[i];
        frequency[item] = (frequency[item] || 0) + 1;
    }

    let mostFrequentItem = null;
    let maxFrequency = 0;
```

```
    for (let item in frequency) {
        if (frequency[item] > maxFrequency) {
            mostFrequentItem = item;
            maxFrequency = frequency[item];
        }
    }
    console.log(`${mostFrequentItem} (${maxFrequency} times)`);
}
var arr1 = [3, 'a', 'a', 'a', 2, 3, 'a', 3, 'a', 2, 4, 9, 3];
findMostFrequentItem(arr1);
```

Output –

```
[Running] node "d:\Semester4\WebTechLab\Week7\Code5.js"
a (5 times)

[Done] exited with code=0 in 1.002 seconds
```

Problem 6 – Pizza Order

Write a Javascript code to display the following table to order pizza

Code –

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Pizza Order Form</title>
</head>
<body>
    <h2>Pizza Order Form</h2>
    <table border="1">
        <tr>
            <th>Item Name</th>
            <th>Price</th>
            <th>Quantity</th>
        </tr>
        <tr>
            <td>Chicken Pizza</td>
            <td>100</td>
                                    <td><input type="number" id="chickenQty" min="0"
oninput="calculateTotal()"></td>
```

```
    </tr>
    <tr>
      <td>Paneer Pizza</td>
      <td>80</td>
      <td><input type="number" id="paneerQty" min="0" oninput="calculateTotal()"></td>
    </tr>
    <tr>
      <td>Veg Pizza</td>
      <td>70</td>
      <td><input type="number" id="vegQty" min="0" oninput="calculateTotal()"></td>
    </tr>
</table>

<br>

<label>Total Cost: </label>
<input type="text" id="totalCost" readonly>

<br><br>

<button onclick="confirmOrder()">Confirm Order</button>
<button onclick="cancelOrder()">Cancel Order</button>

<script>
    function calculateTotal() {
        let chickenPizzaPrice = 100;
        let paneerPizzaPrice = 80;
        let vegPizzaPrice = 70;

        let chickenQty = document.getElementById("chickenQty").value || 0;
        let paneerQty = document.getElementById("paneerQty").value || 0;
        let vegQty = document.getElementById("vegQty").value || 0;

        let totalCost = (chickenPizzaPrice * chickenQty) +
                        (paneerPizzaPrice * paneerQty) +
                        (vegPizzaPrice * vegQty);

        document.getElementById("totalCost").value = totalCost;
    }

    function confirmOrder() {
        alert("Your order is confirmed. It will reach you in 10 minutes.");
    }
```

```
        function cancelOrder() {
            document.getElementById("chickenQty").value = "";
            document.getElementById("paneerQty").value = "";
            document.getElementById("vegQty").value = "";
            document.getElementById("totalCost").value = "";
        }
    </script>
</body>
</html>
```

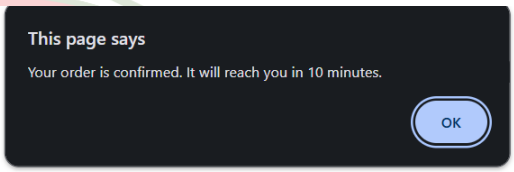
Output –

Pizza Order Form

Item Name	Price	Quantity
Chicken Pizza	100	4
Paneer Pizza	80	5
Veg Pizza	70	10

Total Cost: 1500

Confirm Order Cancel Order



Problem 7 – Calculator

Write a Javascript code to design a basic calculator.

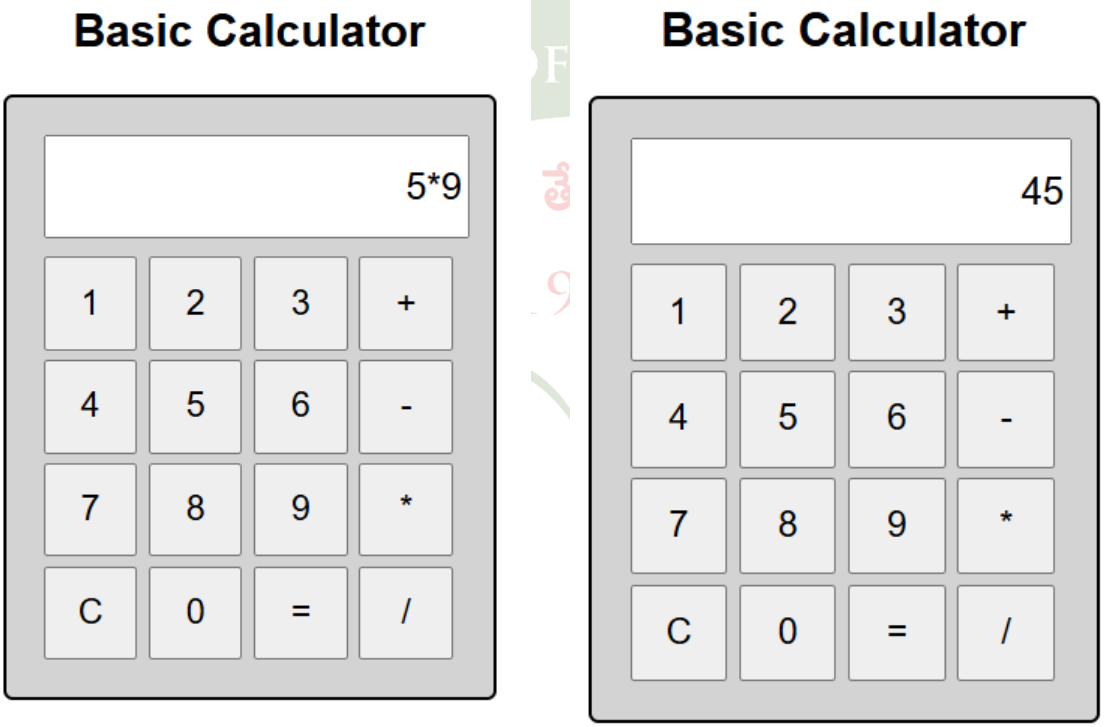
Code –

```
<!DOCTYPE html>
<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;
        }
        .calculator {
            width: 220px;
            margin: auto;
            padding: 20px;
            border: 2px solid black;
            border-radius: 5px;
            background-color: lightgray;
            display: inline-block;
```

```
        }
        input {
            width: 100%;
            height: 50px;
            text-align: right;
            font-size: 20px;
            margin-bottom: 10px;
        }
        .buttons {
            display: grid;
            grid-template-columns: repeat(4, 1fr);
            gap: 5px;
        }
        button {
            width: 50px;
            height: 50px;
            font-size: 18px;
        }
    </style>
</head>
<body>

    <h2>Basic Calculator</h2>
    <div class="calculator">
        <input type="text" id="result" readonly>
        <div class="buttons">
            <button onclick="display('1')">1</button>
            <button onclick="display('2')">2</button>
            <button onclick="display('3')">3</button>
            <button onclick="display('+')">+</button>

            <button onclick="display('4')">4</button>
            <button onclick="display('5')">5</button>
            <button onclick="display('6')">6</button>
            <button onclick="display('-')">-</button>

            <button onclick="display('7')">7</button>
            <button onclick="display('8')">8</button>
            <button onclick="display('9')">9</button>
            <button onclick="display('*')">*</button>

            <button onclick="clearScreen()">C</button>
            <button onclick="display('0')">0</button>
            <button onclick="calculate()">=</button>
```

```
            <button onclick="display('/')">/</button>
        </div>
    </div>
    <script>
        function clearScreen() {
            document.getElementById("result").value = "";
        }

        function display(value) {
            document.getElementById("result").value += value;
        }

        function calculate() {
            try {
                document.getElementById("result").value = eval(document.getElementById("result").value);
            } catch (e) {
                alert("Invalid Expression");
            }
        }
    </script>
</body>
</html>
```

Output –



Problem 8 – Validate IPv4 Address

IPv4 addresses are canonically represented in dot-decimal notation, which consists of four decimal numbers, each ranging from 0 to 255, separated by dots, e.g., “172.16.254.1”. Frame a regular expression to check the given string is a IPv4 address or not.

Code –

```
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>IPv4 Address Validation</title>
</head>
<body>
   <h2>IPv4 Address Validation</h2>
   <form onsubmit="event.preventDefault(); validateIPv4();">
      <label for="ipAddress">Enter an IPv4 Address:</label>
      <input type="text" id="ipAddress" name="ipAddress" required>
      <button type="submit">Submit</button>
   </form>
   <script>
      function validateIPv4() {
         var ipAddress = document.getElementById("ipAddress").value;
         var ipv4Pattern = /^(25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]?)\.(25[0-5]|2[0-4][0-
9]|[01]?[0-9][0-9]?)\.(25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]?)\.(25[0-5]|2[0-4][0-9]|[01]?[0-
9][0-9]?)$/;
         if (ipv4Pattern.test(ipAddress)) {
            alert("Valid IPv4 Address");
         } else {
            alert("Invalid IPv4 Address");
         }
      }
   </script>
</body>
</html>
```

Output –