EX.NO: 4

DATE: 12/01/2024

JAVASCRIPT

AIM:

To create dynamic and interactive web pages using Javascript

STEPS:

Create a HTML document.

Link the document with Javascript using an external file or using script tag.

Include necessary functions in the Javascript code to create a dynamic webpage.

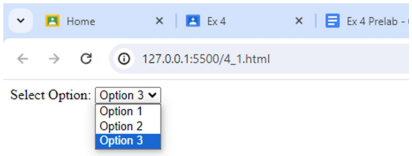
TOOLS USED: VS CODE,CHROME BROWSER

1) Create a Dynamic HTML Select Drop Down List Using JavaScript

CODE: (HTML)

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

  <label for="dynamicSelect">Select Option:</label>
  <select id="dynamicSelect"></select>

  <script>
    // JavaScript code to populate the dropdown dynamically
    var dropdown = document.getElementById('dynamicSelect');
    var options = ["Option 1", "Option 2", "Option 3"];

    for (var i = 0; i < options.length; i++) {
      var option = document.createElement('option');
      option.value = options[i];
      option.text = options[i];
      dropdown.add(option);
    }
  </script>
</body>
</html>
```

OUTPUT:



2) Create, read and delete a cookie in your web browser using JavaScript

CODE: (HTML)

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Cookies Example</title>
</head>
<body>

  <script>
    // Create a cookie
    document.cookie = "username=John Doe; expires=Thu, 18 Dec 2024 12:00:00
UTC; path=/";

    // Read a cookie
    var username = document.cookie.split(';')[0].split('=')[1];
    console.log("Username:", username);

    // Delete a cookie
    document.cookie = "username=; expires=Thu, 01 Jan 1970 00:00:00 UTC;
path=/";
  </script>
</body>
</html>
```

3) Write a JavaScript function to convert an amount to coins.
Sample function : amountTocoins(46, [25, 10, 5, 2, 1])
Here 46 is the amount. and 25, 10, 5, 2, 1 are coins.
Output : 25, 10, 10, 1

CODE: (Javascript)

```
function amountToCoins(amount, coins) {
  let result = [];
  for (let i = 0; i < coins.length; i++) {
    while (amount >= coins[i]) {
      result.push(coins[i]);
```

```
      amount -= coins[i];
    }
  }
  return result;
}

console.log(amountToCoins(46, [25, 10, 5, 2, 1]));
```

4) Check if the given string is a Palindrome using arrow Functions. Get the input from the user by prompt() method

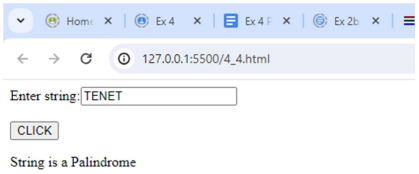
CODE : (HTML)

```
<html>
    <head></head>
    <body>
        Enter string:<input type="text" id="id1"><br><br>
        <input type="button"  onclick="check()" value="CLICK">
        <p id="id2"></p>
        <script src="4_4.js"></script>
    </body>
</html>
```

CODE: (Javascript)

```
function check()
{
    let str=document.getElementById("id1").value ;
    let rev=str.split('').reverse().join('');
   // document.write(rev);
    if(str==rev)
    {
        document.getElementById("id2").innerHTML="String is a Palindrome";
    }
    else
    {
        document.getElementById("id2").innerHTML="String is not a
Palindrome";
    }
}
```

OUTPUT:

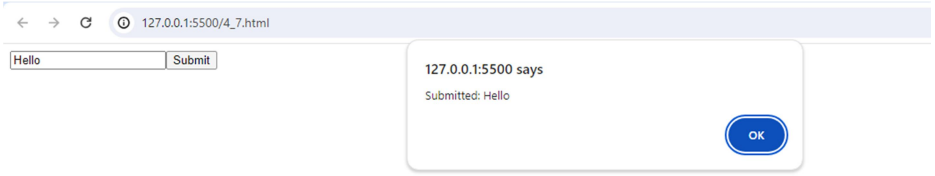


5) a) Create a registration form (with text box, text area, password, email, ph no, check boxes, radio buttons, prompt and confirm boxes), do validation for all the fields (provide custom messages)
b) How to check script is enabled or not - demonstrate
c) Demonstrate Auto-filling one field same as other

CODE: (HTML)

```
<HTML>
<form id="registrationForm">
    <label for="name">Name:</label>
    <input type="text" id="name" required>
    <!-- Add other form fields as needed -->
    <button type="button" onclick="validateForm()">Submit</button>
  </form>

  <script>
    function validateForm() {
      const name = document.getElementById('name').value;
      // Perform validation for other fields

      if (name === "") {
        alert("Name cannot be empty!");
        return;
      }

      // Add other validation checks

      alert("Form submitted successfully!");
    }
    document.write("Script is enabled!");
  </script>
</HTML>
```

OUTPUT:



6) Explore various functions like:
Javascript | Arrow functions, JavaScript | escape(), JavaScript | unescape()
JavaScript | Window print(), Javascript | Window Blur() and Window Focus()
Method, JavaScript | console.log(), JavaScript | Replace() Method, JavaScript |
Map.get( ), JavaScript | Map.entries( ) and JavaScript | Map.has( )

CODE: (Javascript)

```
const add = (a, b) => a + b;
console.log(add(2, 3)); // Output: 5

const encoded = escape("Hello, World!");
console.log(encoded);

const decoded = unescape(encoded);
console.log(decoded);
window.print();

window.blur();
window.focus();

console.log("Hello, console!");
const myMap = new Map();
myMap.set(1, "One");
myMap.set(2, "Two");

console.log(myMap.get(1)); // Output: One
console.log([...myMap.entries()]); // Output: [[1, 'One'], [2, 'Two']]
console.log(myMap.has(3)); // Output: false
```

7) Demonstrate the use of Regular expressions with an example.

CODE: (Javascript)

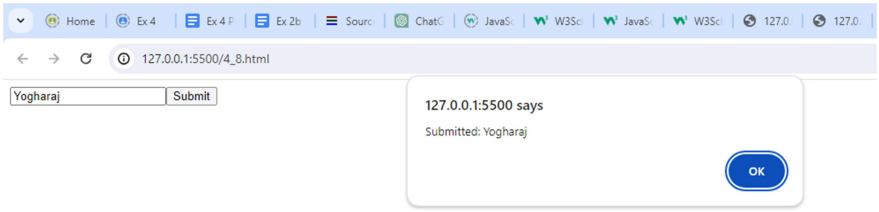
```
const regex = /^[a-zA-Z0-9]+$/;

const userInput = prompt("Enter a string:");
if (regex.test(userInput)) {
  console.log("Valid input!");
} else {
  console.log("Invalid input! Only alphanumeric characters are allowed.");
}
```

8) Create a Form Dynamically with the JavaScript

CODE: (HTML)

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

  <script>
    // Create form dynamically
    const form = document.createElement('form');
    form.id = 'dynamicForm';

    // Create input element
    const input = document.createElement('input');
    input.type = 'text';
    input.name = 'dynamicInput';
    input.placeholder = 'Enter something...';

    // Create submit button
    const submitButton = document.createElement('button');
    submitButton.type = 'submit';
    submitButton.innerText = 'Submit';

    // Append input and button to the form
    form.appendChild(input);
    form.appendChild(submitButton);

    // Append the form to the body
    document.body.appendChild(form);

    // Add form submission event
    form.addEventListener('submit', function (event) {
      event.preventDefault();
      const inputValue = input.value;
      alert('Submitted: ' + inputValue);
    });
  </script>
</body>
</html>
```

OUTPUT:



9) Implement the concept of memoization in javascript

CODE: (Javascript)

```
function memoize(func) {
  const cache = {};

  return function (...args) {
    const key = JSON.stringify(args);

    if (cache[key]) {
      console.log("Result fetched from cache!");
      return cache[key];
    } else {
      const result = func(...args);
      cache[key] = result;
      return result;
    }
  };
}

// Example function to be memoized
const add = (a, b) => {
  console.log("Performing expensive calculation...");
  return a + b;
};

// Memoizing the 'add' function
const memoizedAdd = memoize(add);

// Testing the memoized function
console.log(memoizedAdd(2, 3)); // Output: Performing expensive
calculation... 5
console.log(memoizedAdd(2, 3)); // Output: Result fetched from cache! 5
```

10) Implement first class functions and higher order functions in javascript

CODE: (Javascript)

```
const greet = function (name) {
    return "Hello, " + name + "!";
  };

  // Passing functions as arguments
  const capitalize = function (func, name) {
    return func(name).toUpperCase();
  };

  // Returning functions from other functions
  const getGreeter = function () {
    return function (name) {
      return "Hi, " + name + "!";
    };
  };

  // Using functions as values in objects
  const person = {
    name: "John",
    greet: function () {
      return "Hola, " + this.name + "!";
    },
  };

  console.log(greet("Alice")); // Output: Hello, Alice!
  console.log(capitalize(greet, "Bob")); // Output: HELLO, BOB!
  console.log(getGreeter()("Charlie")); // Output: Hi, Charlie!
  console.log(person.greet()); // Output: Hola, John!
// Higher-order function that takes a function as an argument
const applyOperation = function (operation, a, b) {
    return operation(a, b);
  };

  // Example operations
  const add = (a, b) => a + b;
  const multiply = (a, b) => a * b;

  console.log(applyOperation(add, 2, 3)); // Output: 5
  console.log(applyOperation(multiply, 2, 3)); // Output: 6
```

RESULT:

Thus dynamic web pages are created successfully using Javascript and HTML.