**TASK-----9(A)**

<html>

<head>

<title>Number Operations</title>

<script>

function calculateFactorial() {

const num = parseInt(prompt("Enter a number to find its factorial:"), 10);

if (isNaN(num) || num < 0) {

alert("Please enter a valid non-negative number.");

return;

}

let factorial = 1;

for (let i = 1; i <= num; i++) {

factorial \*= i;

}

document.getElementById("factorialResult").textContent = `Factorial of ${num}: ${factorial}`;

}

function generateFibonacci() {

const num = parseInt(prompt("Enter a number to generate Fibonacci series up to that number:"), 10);

if (isNaN(num) || num < 0) {

alert("Please enter a valid non-negative number.");

return;

}

const fib = [0, 1];

while (fib[fib.length - 1] + fib[fib.length - 2] <= num) {

fib.push(fib[fib.length - 1] + fib[fib.length - 2]);

}

document.getElementById("fibonacciResult").textContent = `Fibonacci series up to ${num}: ${fib.join(", ")}`;

}

function findPrimes() {

const num = parseInt(prompt("Enter a number to find all prime numbers up to that number:"), 10);

if (isNaN(num) || num < 2) {

alert("Please enter a number greater than or equal to 2.");

return;

}

const primes = [];

for (let i = 2; i <= num; i++) {

let isPrime = true;

for (let j = 2; j <= Math.sqrt(i); j++) {

if (i % j === 0) {

isPrime = false;

break;

}

}

if (isPrime) primes.push(i);

}

document.getElementById("primeResult").textContent = `Prime numbers up to ${num}: ${primes.join(", ")}`;

}

function checkPalindrome() {

const str = prompt("Enter a string or number to check if it is a palindrome:");

if (!str) {

alert("Please enter a valid string or number.");

return;

}

const isPalindrome = str === str.split("").reverse().join("");

document.getElementById("palindromeResult").textContent = isPalindrome

? `${str} is a palindrome.`

: `${str} is not a palindrome.`;

}

</script>

<style>

body {

font-family: Arial, sans-serif;

margin: 20px;

line-height: 1.6;

text-align: center;

}

button {

padding: 10px 20px;

font-size: 16px;

margin-top: 20px;

margin-bottom: 10px;

}

.result {

margin-top: 20px;

font-size: 18px;

font-weight: bold;

}

</style>

</head>

<body>

<header>

<h1>Number Operations</h1>

</header>

<main>

<button onclick="calculateFactorial()">Factorial</button>

<p id="factorialResult" class="result">-</p>

<button onclick="generateFibonacci()">Fibonacci Series</button>

<p id="fibonacciResult" class="result">-</p>

<button onclick="findPrimes()">Prime Numbers</button>

<p id="primeResult" class="result">-</p>

<button onclick="checkPalindrome()">Check Palindrome</button>

<p id="palindromeResult" class="result">-</p>

</main>

<footer>

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</footer>

</body>

</html>

**TASK-----9(B)**

<html>

<head>

<title>Number Operations</title>

<script>

function calculateFactorial() {

const num = parseInt(document.getElementById("numberInput").value, 10);

if (isNaN(num) || num < 0) {

alert("Please enter a valid non-negative number.");

return;

}

let factorial = 1;

for (let i = 1; i <= num; i++) {

factorial \*= i;

}

document.getElementById("result").textContent = `Factorial of ${num}: ${factorial}`;

}

function generateFibonacci() {

const num = parseInt(document.getElementById("numberInput").value, 10);

if (isNaN(num) || num < 0) {

alert("Please enter a valid non-negative number.");

return;

}

const fib = [0, 1];

while (fib[fib.length - 1] + fib[fib.length - 2] <= num) {

fib.push(fib[fib.length - 1] + fib[fib.length - 2]);

}

document.getElementById("result").textContent = `Fibonacci series up to ${num}: ${fib.join(", ")}`;

}

function findPrimes() {

const num = parseInt(document.getElementById("numberInput").value, 10);

if (isNaN(num) || num < 2) {

alert("Please enter a number greater than or equal to 2.");

return;

}

const primes = [];

for (let i = 2; i <= num; i++) {

let isPrime = true;

for (let j = 2; j <= Math.sqrt(i); j++) {

if (i % j === 0) {

isPrime = false;

break;

}

}

if (isPrime) primes.push(i);

}

document.getElementById("result").textContent = `Prime numbers up to ${num}: ${primes.join(", ")}`;

}

function checkPalindrome() {

const str = document.getElementById("numberInput").value;

if (!str) {

alert("Please enter a valid string or number.");

return;

}

const isPalindrome = str === str.split("").reverse().join("");

document.getElementById("result").textContent = isPalindrome

? `${str} is a palindrome.`

: `${str} is not a palindrome.`;

}

</script>

<style>

body {

font-family: Arial, sans-serif;

margin: 20px;

line-height: 1.6;

text-align: center;

}

button {

padding: 10px 20px;

font-size: 16px;

margin-top: 10px;

}

.result {

margin-top: 20px;

font-size: 18px;

font-weight: bold;

}

input {

padding: 10px;

font-size: 16px;

width: 50%;

margin-bottom: 20px;

}

</style>

</head>

<body>

<header>

<h1>Number Operations</h1>

</header>

<main>

<input type="text" id="numberInput" placeholder="Enter a number or string">

<br>

<button onclick="calculateFactorial()">Factorial</button>

<button onclick="generateFibonacci()">Fibonacci Series</button>

<button onclick="findPrimes()">Prime Numbers</button>

<button onclick="checkPalindrome()">Check Palindrome</button>

<p id="result" class="result">-</p>

</main>

<footer>

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</footer>

</body>

</html>

**TASK-----9(C)**

<html>

<head>

<title>Registration Form Validation</title>

<script>

function validateForm() {

const name = document.getElementById("name").value;

const mobile = document.getElementById("mobile").value;

const email = document.getElementById("email").value;

const namePattern = /^[a-zA-Z][a-zA-Z0-9]{5,}$/;

const mobilePattern = /^[0-9]{10}$/;

const emailPattern = /^[^\s@]+@[^\s@]+\.[^\s@]+$/;

let errors = [];

// Validate Name

if (!namePattern.test(name)) {

errors.push("Name must start with an alphabet, followed by alphanumeric characters, and be at least 6 characters long.");

}

// Validate Mobile

if (!mobilePattern.test(mobile)) {

errors.push("Mobile number must be exactly 10 digits long.");

}

// Validate Email

if (!emailPattern.test(email)) {

errors.push("Email must be in the format xxxxxxx@xxxxxx.xxx");

}

if (errors.length > 0) {

alert(errors.join("\n"));

return false;

}

alert("Registration successful!");

return true;

}

</script>

<style>

body {

font-family: Arial, sans-serif;

margin: 20px;

line-height: 1.6;

text-align: center;

}

form {

margin: 0 auto;

max-width: 400px;

padding: 20px;

border: 1px solid #ccc;

border-radius: 5px;

}

input {

width: 100%;

padding: 10px;

margin: 10px 0;

font-size: 16px;

border: 1px solid #ccc;

border-radius: 5px;

}

button {

padding: 10px 20px;

font-size: 16px;

background-color: #4CAF50;

color: white;

border: none;

border-radius: 5px;

cursor: pointer;

}

button:hover {

background-color: #45a049;

}

</style>

</head>

<body>

<header>

<h1>Registration Form</h1>

</header>

<main>

<form onsubmit="return validateForm()">

<input type="text" id="name" placeholder="Enter your name" required>

<input type="text" id="mobile" placeholder="Enter your mobile number" required>

<input type="email" id="email" placeholder="Enter your email" required>

<button type="submit">Register</button>

</form>

</main>

<footer>

<p>&copy; 2024 Registration Form. All rights reserved.</p>

</footer>

</body>

</html>