**Lab Cycle 2**

**style.css:**

**body{ background-color: skyblue; text-align: center; font-family: Calibri;}**

**input{ width: 25%; padding: 10px; margin-top: 5px; margin-bottom: 15px; border: 3px solid gray;**

**border-radius: 4px; box-sizing: border-box; font-size: 16px;}**

**input[type="submit"],input[type="reset"], button{ background-color: #4CAF50; color: #fff;**

**padding: 10px; border: none; border-radius: 4px; box-sizing: border-box; cursor: pointer;**

**font-size: 16px; margin-top: 10px; margin-bottom: 15px; width: 10%;}**

**input[type="submit"]:hover, input[type="reset"]:hover, button:hover{ background-color: #45a049;}**

**div{ margin-top: 50px; margin-bottom: 50px; box-sizing: border-box;}**

**.output{ border:3px solid black; width:max-content; padding-right:20px; padding-left:20px;**

**box-sizing: border-box;}**

**span{ font-size: 25px; font-weight:bold;}**

**img{ width: 45%; border: 3px solid black;}**

**1a. Write a java script code to find the given year is leap year or not.**

**Program:**

**<html>**

**<head>**

**<title>Leap Year Calculator</title>**

**<link rel="stylesheet" type="text/css" href="style.css">**

**<script>**

**function isLeapYear(year)**

**{ if (year % 4 == 0 && year % 100 != 0 || year % 400 == 0)**

**return true;**

**else return false;**

**}**

**function getYear()**

**{**

**let year = parseInt(document.getElementById("year").value);**

**let answer = '';**

**if(year>0 && year<=9999)**

**{**

**if(isLeapYear(year)) answer = year + " is a Leap Year";**

**else answer = year + " is not a Leap Year";**

**}**

**else answer = "Invalid Year!";**

**document.getElementById("output").innerHTML = answer;**

**}**

**</script>**

**</head>**

**<body>**

**<div>**

**<h1><u>Leap Year Calculator</u></h1>**

**<span>Enter a year:</span>**

**<input type="number" id="year"><br>**

**<input type="submit" value="SUBMIT" onclick="getYear();"><br>**

**<center>**

**<div class="output"><h1 id="output"></h1></div>**

**</center>**

**</div>**

**</body>**

**</html>**

**1b. Write a java script code to compute the biggest of three numbers.**

**Program:**

**<html>**

**<head>**

**<title>Largest Among Three Numbers</title>**

**<link rel="stylesheet" type="text/css" href="style.css">**

**<script>**

**// Largest Among Three Numbers:**

**function largestAmongThree(a, b, c)**

**{**

**let max = a;**

**if(b > max) max = b;**

**if(c > max) max = c;**

**return max;**

**}**

**function getNum()**

**{**

**let n1 = parseFloat(document.getElementById("num1").value);**

**let n2 = parseFloat(document.getElementById("num2").value);**

**let n3 = parseFloat(document.getElementById("num3").value);**

**let answer = '';**

**if(Math.floor(n1%1) <= 0 && Math.floor(n2%1) <= 0 && Math.floor(n3%1) <= 0)**

**answer = "Largest Number Among "+n1+", "+n2+", "+n3+" = "+largestAmongThree(n1,n2,n3);**

**else answer = "Invalid Number!";**

**document.getElementById("output").innerHTML = answer;**

**}**

**</script>**

**</head>**

**<body>**

**<div>**

**<span>Enter number 1:</span>**

**<input type="number" id="num1"><br>**

**<span>Enter number 2:</span>**

**<input type="number" id="num2"><br>**

**<span>Enter number 3:</span>**

**<input type="number" id="num3"><br>**

**<input type="submit" value="SUBMIT" onclick="getNum();">**

**<center>**

**<div class="output">**

**<h1 id="output"></h1>**

**</div>**

**</center>**

**</div>**

**</body>**

**</html>**

**1c. Write a java script code to perform the arithmetic operations using switch statement.**

**Program:**

**<html>**

**<head>**

**<title>Simple Calculator</title>**

**<link rel="stylesheet" type="text/css" href="style.css">**

**<script>**

**// Simple Calculator:**

**function calculate(n1, oper, n2)**

**{**

**switch(oper)**

**{**

**case '+': return n1 + n2;**

**case '-': return n1 - n2;**

**case '\*': return n1 \* n2;**

**case '/': return n1 / n2;**

**case '//': return Math.floor(n1/n2);**

**case '%': return n1 % n2;**

**case '\*\*': return n1 \*\* n2;**

**default: return "Invalid Operator!";**

**}**

**}**

**function getData()**

**{**

**let n1 = parseFloat(document.getElementById("num1").value);**

**let oper = document.getElementById("oper").value;**

**let n2 = parseFloat(document.getElementById("num2").value);**

**let answer = '';**

**if(Math.floor(n1%1) <= 0 && Math.floor(n2%1) <= 0)**

**{**

**answer = calculate(n1, oper, n2);**

**if(answer != "Invalid Operator!")**

**answer = "The Expression: " + n1 + " " + oper + " " + n2 + " = " + answer;**

**}**

**else**

**answer = "Invalid Number!";**

**document.getElementById("output").innerHTML = answer;**

**}**

**</script>**

**</head>**

**<body>**

**<div>**

**<h1><u>Simple Calculator</u></h1>**

**<span>Enter 1st Operand:</span>**

**<input type="number" id="num1"><br>**

**<span>Enter Operator:</span>**

**<input type="text" id="oper"><br>**

**<span>Enter 2nd Operand:</span>**

**<input type="number" id="num2"><br>**

**<input type="submit" value="SUBMIT" onclick="getData();">**

**<center>**

**<div class="output">**

**<h1 id="output"></h1>**

**</div>**

**</center>**

**</div>**

**</body>**

**</html>**

**2a. Write a java script code to calculate the sum of the digits of a give number.**

**Program:**

**<html>**

**<head>**

**<title>Sum Of Digits of a Number</title>**

**<link rel="stylesheet" type="text/css" href="style.css">**

**<script>**

**function sumOfDigits(number)**

**{**

**let sum = 0;**

**let rem = 0;**

**if(number < 0) number \*= -1;**

**while(number>0)**

**{**

**rem = number % 10;**

**sum += rem;**

**number = Math.floor(number/10);**

**}**

**return sum;**

**}**

**function getNum()**

**{**

**let number = parseInt(document.getElementById("num").value);**

**let answer = '';**

**if(Number.isInteger(number))**

**answer = "Sum of Digits of " + number + " = " + sumOfDigits(number);**

**else answer = "Invalid Number!"**

**document.getElementById("output").innerHTML = answer;**

**}**

**</script>**

**</head>**

**<body>**

**<div>**

**<h1><u>Sum of Digits of a Number</u></h1>**

**<span>Enter a number:</span>**

**<input type="number" id="num"><br>**

**<input type="submit" value="SUBMIT" onclick="getNum();">**

**<center>**

**<div class="output">**

**<h1 id="output"></h1>**

**</div>**

**</center>**

**</div>**

**</body>**

**</html>**

**2b. Write a java script code to reverse a given number.**

**Program:**

**<html>**

**<head>**

**<title>Reverse of a Number</title>**

**<link rel="stylesheet" type="text/css" href="style.css">**

**<script>**

**function reverseNum(number)**

**{**

**let rev = '';**

**let rem = 0;**

**if(number < 0) number \*= -1;**

**while(number>0)**

**{**

**rem = number%10;**

**rev += rem;**

**number = Math.floor(number/10);**

**}**

**return rev;**

**}**

**function getNum()**

**{**

**let number = parseInt(document.getElementById("num").value);**

**let answer = '';**

**if(Number.isInteger(number))**

**answer = "Reverse of " + number + " = " + reverseNum(number);**

**else answer = "Invalid Number!";**

**document.getElementById("output").innerHTML = answer;**

**}**

**</script>**

**</head>**

**<body>**

**<div>**

**<h1><u>Reverse of a Number</u></h1>**

**<span>Enter a number:</span>**

**<input type="number" id="num"><br>**

**<input type="submit" value="SUBIMT" onclick="getNum();">**

**<center>**

**<div class="output">**

**<h1 id="output"></h1>**

**</div>**

**</center>**

**</div>**

**</body>**

**</html>**

**2c. Write a java script code to print the first 10 natural numbers except 5.**

**Program:**

**<html>**

**<head>**

**<title>1 to 10 Numbers Except 5</title>**

**<link rel="stylesheet" type="text/css" href="style.css">**

**<script>**

**function printNums()**

**{**

**for(let num=1; num<=10; num++)**

**{**

**if(num === 5) continue;**

**document.getElementById("output").innerHTML += " " + num;**

**}**

**}**

**</script>**

**</head>**

**<body>**

**<div>**

**<h1><u>1 to 10 Numbers Except 5</u></h1>**

**<button onclick="printNums();">Print Numbers</button>**

**<center>**

**<div class="output">**

**<h1 id="output"></h1>**

**</div>**

**</center>**

**</div>**

**</body>**

**</html>**

**3a. Write functions in java script for GCD, Reversing a Number, Random Numbers.**

**Program:**

**<html>**

**<head>**

**<title>GCD, Reverse Number, Random Number</title>**

**<link rel="stylesheet" type="text/css" href="style.css">**

**<script>**

**function GCD(a, b)**

**{**

**if (b === 0) return Math.abs(a);**

**else return Math.abs(GCD(b, a%b));**

**}**

**function reverseNum(number)**

**{**

**let rev = '';**

**let rem = 0;**

**if(number < 0) number \*= -1;**

**while(number>0)**

**{**

**rem = number%10;**

**rev += rem;**

**number = Math.floor(number/10);**

**}**

**return rev;**

**}**

**function genRandNum(min ,max)**

**{**

**return Math.floor(Math.random()\*(max - min) + min);**

**}**

**function getGcdNum()**

**{**

**let num1 = parseInt(document.getElementById("gcdNum1").value);**

**let num2 = parseInt(document.getElementById("gcdNum2").value);**

**let answer = '';**

**if(Number.isInteger(num1) && Number.isInteger(num2))**

**answer = "GCD of " + num1 + " and " + num2 + " = " + GCD(num1, num2);**

**else answer = "Invalid Number!";**

**document.getElementById("GcdOutput").innerHTML = answer;**

**}**

**function getRevNum()**

**{**

**let number = parseInt(document.getElementById("revNum").value);**

**let answer = '';**

**if(Number.isInteger(number))**

**answer = "Reverse of " + number + " = " + reverseNum(number);**

**else answer = "Invalid Number!";**

**document.getElementById("ReverseOutput").innerHTML = answer;**

**}**

**function getRandRange()**

**{**

**let min = parseInt(document.getElementById("min").value);**

**let max = parseInt(document.getElementById("max").value);**

**let answer = '';**

**if(Number.isInteger(min) && Number.isInteger(min))**

**{**

**if(min < max-1)**

**answer = "A Random Number in the range (" + min + ", " + max + "): " + genRandNum(min, max);**

**else answer = "min should be less than max!"**

**}**

**else answer = "Invalid Number!";**

**document.getElementById("RandomOutput").innerHTML = answer;**

**}**

**</script>**

**</head>**

**<body>**

**<div>**

**<span><u>GCD:</u></span><br>**

**<span>Enter number 1:</span>**

**<input type="number" id="gcdNum1"><br>**

**<span>Enter number 2:</span>**

**<input type="number" id="gcdNum2"><br>**

**<input type="submit" value="SUBMIT" onclick="getGcdNum();"><br>**

**<center>**

**<div class="output">**

**<h1 id="GcdOutput"></h1>**

**</div>**

**</center>**

**</div>**

**<div>**

**<span><u>Reverse Number:</u></span><br>**

**<span>Enter the number:</span>**

**<input type="number" id="revNum"><br>**

**<input type="submit" value="SUBMIT" onclick="getRevNum();"><br>**

**<center>**

**<div class="output">**

**<h1 id="ReverseOutput"></h1>**

**</div>**

**</center>**

**</div>**

**<div>**

**<span><u>Random Number:</u></span><br>**

**<span>Enter the range(max exclusive):</span><br>**

**<input type="number" id="min" placeholder="min">**

**<span>to</span>**

**<input type="number" id="max" placeholder="max"><br>**

**<input type="submit" value="SUBMIT" onclick="getRandRange()">**

**<center>**

**<div class="output">**

**<h1 id="RandomOutput"></h1>**

**</div>**

**</center>**

**</div>**

**</body>**

**</html>**

**3b. Write Recursive functions in java script for Factorial, Fibonacci, Power.**

**Program:**

**3c. Write a java script code for Random image generator.**

**Program:**

**4a. Write a java script code to sort the array element using bubble sort technique.**

**Program:**

**4b. Write a java script code to search an element in the given set of elements using binary search technique.**

**Program:**

**4c. Write a java script code to perform:**

1. **addition of two matrices.**
2. **multiplication of two matrices.**

**Program:**

**5a. Write a java script code to implement string operations using String object.**

**Program:**

**5b. Write a java script code to implement mathematical operations using Math object.**

**Program:**

**5c. Write a java script code to display greeting messages using Date object.**

**Program:**

**6a. Write a java script code to demonstate Form events.**

**Program:**

**6b. Write a java script code to demonstate Mouse events.**

**Program:**

**6c. Write a java script code to demonstate Event Bubbling.**

**Program:**