6. Apply HTML, CSS and JavaScript to design a simple calculator to perform the following operations: sum,product, difference, remainder, quotient, power, square root and square.

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

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

<title>Simple Calculator</title>

<style>

body {

font-family: Arial, sans-serif;

display: flex;

justify-content: center;

align-items: center;

height: 100vh;

margin: 0;

background-color: #f0f0f0;

}

.calculator {

background-color: #fff;

border-radius: 8px;

box-shadow: 0 0 10px rgba(0,0,0,0.1);

padding: 20px;

width: 300px;

}

#display {

width: 100%;

height: 40px;

font-size: 1.5em;

text-align: right;

margin-bottom: 10px;

padding: 5px;

box-sizing: border-box;

}

.buttons {

display: grid;

grid-template-columns: repeat(4, 1fr);

gap: 10px;

}

button {

padding: 10px;

font-size: 1.2em;

border: none;

background-color: #e0e0e0;

cursor: pointer;

border-radius: 4px;

}

button:hover {

background-color: #d0d0d0;

}

.operator {

background-color: #f0a030;

color: white;

}

.operator:hover {

background-color: #e09020;

}

</style>

</head>

<body>

<div class="calculator">

<input type="text" id="display" readonly>

<div class="buttons">

<button onclick="appendToDisplay('7')">7</button>

<button onclick="appendToDisplay('8')">8</button>

<button onclick="appendToDisplay('9')">9</button>

<button class="operator"

onclick="setOperation('+')">&plus;</button>

<button onclick="appendToDisplay('4')">4</button>

<button onclick="appendToDisplay('5')">5</button>

<button onclick="appendToDisplay('6')">6</button>

<button class="operator" onclick="setOperation('

')">&minus;</button>

<button onclick="appendToDisplay('1')">1</button>

<button onclick="appendToDisplay('2')">2</button>

<button onclick="appendToDisplay('3')">3</button>

<button class="operator"

onclick="setOperation('\*')">&times;</button>

<button onclick="appendToDisplay('0')">0</button>

<button onclick="appendToDisplay('.')">.</button>

<button class="operator" onclick="calculate()">&equals;</button>

<button class="operator"

onclick="setOperation('/')">&divide;</button>

<button class="operator" onclick="setOperation('%')">%</button>

<button class="operator"

onclick="setOperation('^')">x<sup>y</sup></button>

<button class="operator" onclick="squareRoot()">√</button>

<button class="operator"

onclick="square()">x<sup>2</sup></button>

<button onclick="clearDisplay()">C</button>

</div>

</div>

<script>

let display = document.getElementById('display');

let currentValue = '';

let operation = '';

let previousValue = '';

function appendToDisplay(value) {

currentValue += value;

display.value = currentValue;

}

function clearDisplay() {

currentValue = '';

operation = '';

previousValue = '';

}

display.value = '';

function setOperation(op) {

if (currentValue !== '') {

if (previousValue !== '') {

calculate();

}

operation = op;

previousValue = currentValue;

currentValue = '';

}

}

function calculate() {

if (previousValue !== '' && currentValue !== '') {

let result;

const prev = parseFloat(previousValue);

const current = parseFloat(currentValue);

switch(operation) {

case '+':

result = prev + current;

break;

case '-':

result = prev - current;

break;

case '\*':

result = prev \* current;

break;

case '/':

result = prev / current;

break;

case '%':

result = prev % current;

break;

case '^':

result = Math.pow(prev, current);

break;

}

display.value = result;

previousValue = result.toString();

currentValue = '';

operation = '';

}

}

function squareRoot() {

if (currentValue !== '') {

const result = Math.sqrt(parseFloat(currentValue));

display.value = result;

currentValue = result.toString();

}

}

function square() {

if (currentValue !== '') {

const result = Math.pow(parseFloat(currentValue), 2);

display.value = result;

currentValue = result.toString();

}

}

</script>

</body>

</html>

Experiment-07

Develop JavaScript program (with HTML/CSS) for: a) Converting JSON text to JavaScript Object b) Convert JSON results into a date c) Converting From JSON To CSV and CSV to JSON d) Create hash from string using crypto.createHash() method.

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

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

<title>JSON/CSV Converter and Hash Generator</title>

<script src="https://cdnjs.cloudflare.com/ajax/libs/crypto-js/4.1.1/crypto

js.min.js"></script>

<style>

body {

font-family: Arial, sans-serif;

line-height: 1.6;

margin: 0;

padding: 20px;

background-color: #f4f4f4;

}

.container {

max-width: 800px;

margin: auto;

background: white;

padding: 20px;

border-radius: 5px;

box-shadow: 0 0 10px rgba(0,0,0,0.1);

}

h1 {

color: #333;

}

textarea {

width: 100%;

height: 100px;

margin-bottom: 10px;

}

button {

background-color: #4CAF50;

color: white;

padding: 10px 15px;

border: none;

border-radius: 4px;

cursor: pointer;

margin-right: 10px;

}

button:hover {

background-color: #45a049;

}

#result {

margin-top: 20px;

padding: 10px;

background-color: #e7e7e7;

border-radius: 4px;

}

</style>

</head>

<body>

<div class="container">

<h1>JSON/CSV Converter and Hash Generator</h1>

<h2>a) Convert JSON to JavaScript Object</h2>

<textarea id="jsonInput" placeholder="Enter JSON here"></textarea>

<button onclick="convertJsonToObject()">Convert to Object</button>

<h2>b) Convert JSON to Date</h2>

<textarea id="jsonDateInput" placeholder='Enter JSON date string

(e.g., {"date": "2023-05-15T12:00:00Z"})'></textarea>

<button onclick="convertJsonToDate()">Convert to Date</button>

<h2>c) Convert JSON to CSV and CSV to JSON</h2>

<textarea id="dataInput" placeholder="Enter JSON or CSV

here"></textarea>

<button onclick="convertJsonToCsv()">JSON to CSV</button>

<button onclick="convertCsvToJson()">CSV to JSON</button>

<h2>d) Create Hash from String</h2>

<textarea id="hashInput" placeholder="Enter string to

hash"></textarea>

<button onclick="createHash()">Generate Hash</button>

<div id="result"></div>

</div>

<script>

function convertJsonToObject() {

try {

const jsonInput = document.getElementById('jsonInput').value;

const jsObject = JSON.parse(jsonInput);

document.getElementById('result').innerText = 'Converted Object: '

+ JSON.stringify(jsObject, null, 2);

} catch (error) {

document.getElementById('result').innerText = 'Error: ' +

error.message;

}

}

function convertJsonToDate() {

try {

const jsonInput = document.getElementById('jsonDateInput').value;

const jsObject = JSON.parse(jsonInput);

const date = new Date(jsObject.date);

document.getElementById('result').innerText = 'Converted Date: ' +

date.toString();

} catch (error) {

document.getElementById('result').innerText = 'Error: ' +

error.message;

}

}

function convertJsonToCsv() {

try {

const jsonInput = document.getElementById('dataInput').value;

const jsObject = JSON.parse(jsonInput);

const headers = Object.keys(jsObject[0]);

const csvRows = [

headers.join(','),

...jsObject.map(row => headers.map(fieldName =>

JSON.stringify(row[fieldName])).join(','))

];

const csvString = csvRows.join('\n');

document.getElementById('result').innerText = 'Converted CSV:\n'

+ csvString;

} catch (error) {

document.getElementById('result').innerText = 'Error: ' +

error.message;

}

}

function convertCsvToJson() {

try {

const csvInput = document.getElementById('dataInput').value;

const lines = csvInput.split('\n');

const headers = lines[0].split(',');

const jsonArray = lines.slice(1).map(line => {

const values = line.split(',');

return headers.reduce((obj, header, index) => {

obj[header] = values[index];

return obj;

}, {});

});

document.getElementById('result').innerText = 'Converted

JSON:\n' + JSON.stringify(jsonArray, null, 2);

} catch (error) {

document.getElementById('result').innerText = 'Error: ' +

error.message;

}

}

function createHash() {

try {

const input = document.getElementById('hashInput').value;

const hash = CryptoJS.SHA256(input);

document.getElementById('result').innerText = 'Generated Hash

(SHA-256): ' + hash;

} catch (error) {

document.getElementById('result').innerText = 'Error: ' +

error.message;

}

}

</script>

</body>

</html>