Bangalore Institute of Technology

Department of Computer Science and Engineering

Web Technology Laboratory (BCSL504)

Week 7

Lab program 7

7. 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>

<head>
    <script src="https://cdnjs.cloudflare.com/ajax/libs/crypto-
js/4.1.1/cryptojs.min.js"></script>
    <title>Simple Converter</title>
    <style>
        * {
            padding: 0;
            margin: 0;
            box-sizing: border-box;
        }

        body {
            font-family: Arial, sans-serif;
            color: #000000;
        }

        .container {
            width: 60%;
            margin: 0 auto;
            padding: 20px;
        }

        .head-title h1 {
            font-size: 28px;
            padding: 10px;
            color: #fff;
            margin-bottom: 50px;
        }
```

```
.head-title {
    width: 100%;
    background: #000;
    text-align: center;
    border-radius: 10px;
}

.section {
    margin-bottom: 40px;
    padding: 20px;
    border-radius: 8px;
    background: #fff;
    box-shadow: rgba(0, 0, 0, 0.1) 0px 1px 3px 0px, rgba(0, 0, 0, 0.06) 0px 1px 2px 0px;
    transition: all 0.3s;
    overflow: hidden;
}

.section h2 {
    color: #000000;
    font-size: 20px;
    margin-bottom: 15px;
}


textarea {
    font-size: 14px;
    width: 100%;
    height: 120px;
    margin-bottom: 15px;
    padding: 12px;
    border-radius: 8px;
    border: 1px solid #00000022;
    box-sizing: border-box;
    transition: border-color 0.3s ease, box-shadow 0.3s ease;
}

textarea:focus {
    background: transparent;
    border: 1px solid #00000022;
    border-color: #007BFF;
    box-shadow: 0 0 12px rgba(0, 123, 255, 0.5);
    outline: none;
}

input[type="text"] {
```

```
    width: calc(100% - 24px);
    padding: 12px;
    border-radius: 8px;
    border: 1px solid #ddd;
    box-sizing: border-box;
    transition: border-color 0.3s ease, box-shadow 0.3s ease;
    margin-bottom: 15px;
}

input[type="text"]:focus {
    border-color: #007BFF;
    box-shadow: 0 0 8px rgba(0, 123, 255, 0.5);
    outline: none;
}

button {
    display: inline-block;
    padding: 15px 15px;
    margin: 10px 0;
    font-weight: 600;
    border: none;
    border-radius: 7px;
    background-color: #007BFF;
    color: #fff;
    cursor: pointer;
    font-size: 16px;
    transition: box-shadow 0.3s ease, transform 0.3s ease;
}

button:hover {
    box-shadow: 0 0 0 2px #fff, 0 0 0 4px #007BFF;
}

button:focus {
    box-shadow: 0 0 0 2px #fff, 0 0 0 4px #007BFF;
}

pre {
    display: none;
    background: #f8f9fa;
    border: 1px solid #ddd;
    padding: 15px;
    border-radius: 8px;
    overflow: auto;
    transition: opacity 0.3s ease;
}
```

```
        .error {
            margin-top: 10px;
            font-size: 14px;
            color: #000;
            background: #ffdddd;
            border-color: #ff0000;
            padding: 10px;
        }

        .success {
            margin-top: 10px;
            font-size: 14px;
            color: #000;
            background: #6ef08d38;
            border-color: #47e56d;
            padding: 10px;
        }

        .adjust-area {
            margin-top: 30px;
        }
    </style>
</head>

<body>
    <div class="container">
        <div class="head-title">
            <h1>Simple Converter</h1>
        </div>
        <div class="section">
            <h2>1. Convert JSON Text to JavaScript Object</h2>
            <textarea id="jsonInput" placeholder="Enter JSON here..."></textarea>
            <button onclick="convertJsonToObject()">Convert JSON</button>
            <pre id="jsonOutput" class="output"></pre>
        </div>

        <div class="section">
            <h2>2. Convert JSON Results into Date</h2>
            <textarea id="jsonDateInput" placeholder='Enter JSON with date in "yyyy-mm-dd" format'></textarea>
            <button onclick="convertJsonToDate()">Convert to Date</button>
            <pre id="jsonDateOutput" class="output"></pre>
        </div>

        <div class="section">
```

```
        <h2>3. Convert JSON to CSV and CSV to JSON</h2>
        <textarea id="jsonCsvInput" placeholder="Enter JSON for CSV conversion..."></textarea>
        <button onclick="convertJsonToCsv()">JSON to CSV</button>
        <pre id="csvOutput" class="output"></pre>
        <textarea id="csvInput" placeholder="Enter CSV here..." class="adjust-area"></textarea>
        <button onclick="convertCsvToJson()">CSV to JSON</button>
        <pre id="jsonCsvOutput" class="output"></pre>
      </div>

      <div class="section">
        <h2>4. Create Hash from String</h2>
        <input type="text" id="hashInput" placeholder="Enter string to hash">
        <button onclick="createHash()">Create Hash</button>
        <pre id="hashOutput" class="output"></pre>
      </div>
    </div>

    <script>
      function showResult(id, text, isSuccess) {
        const element = document.getElementById(id);
        element.textContent = text;
        element.className = isSuccess ? 'success' : 'error';
        element.style.display = 'block';
        element.style.opacity = '1';
      }

      function convertJsonToObject() {
        const jsonInput = document.getElementById('jsonInput').value;
        try {
          const jsonObject = JSON.parse(jsonInput);
          showResult('jsonOutput', JSON.stringify(jsonObject, null, 2), true);
        } catch (error) {
          showResult('jsonOutput', 'Invalid JSON', false);
        }
      }

      function convertJsonToDate() {
        const jsonDateInput = document.getElementById('jsonDateInput').value;
        try {
          const data = JSON.parse(jsonDateInput);
          if (data.date && !isNaN(new Date(data.date).getTime())) {
            const date = new Date(data.date);
            showResult('jsonDateOutput', date.toString(), true);
          } else {
```

```
            showResult('jsonDateOutput', 'Invalid Date Format', false);
        }
    } catch (error) {
        showResult('jsonDateOutput', 'Invalid JSON', false);
    }
}

function convertJsonToCsv() {
    const jsonInput = document.getElementById('jsonCsvInput').value;
    try {
        const jsonArray = JSON.parse(jsonInput);
        if (Array.isArray(jsonArray) && jsonArray.length > 0) {
            const keys = Object.keys(jsonArray[0]);
            const csv = [
                keys.join(','),
                ...jsonArray.map(row => keys.map(key => JSON.stringify(row[key])).join(','))
            ].join('\n');
            showResult('csvOutput', csv, true);
        } else {
            showResult('csvOutput', 'Invalid JSON: Expected an array with objects.', false);
        }
    } catch (error) {
        showResult('csvOutput', 'Invalid JSON', false);
    }
}

function convertCsvToJson() {
    const csvInput = document.getElementById('csvInput').value;
    try {
        const lines = csvInput.trim().split('\n');
        if (lines.length > 1) {
            const keys = lines[0].split(',');
            if (keys.length > 0) {
                const jsonArray = lines.slice(1).map(line => {
                    const values = line.split(',');
                    return keys.reduce((obj, key, index) => {
                        obj[key] = values[index];
                        return obj;
                    }, {});
                });
                showResult('jsonCsvOutput', JSON.stringify(jsonArray, null, 2), true);
            } else {
                showResult('jsonCsvOutput', 'Invalid CSV: No columns found.', false);
            }
        } else {
            showResult('jsonCsvOutput', 'Invalid CSV: No data found.', false);
```

```
            }
        } catch (error) {
            showResult('jsonCsvOutput', 'Invalid CSV', false);
        }
    }

    function createHash() {
        const hashInput = document.getElementById('hashInput').value.trim();
        if (hashInput.length > 0) {
            const hash = CryptoJS.SHA256(hashInput).toString();
            showResult('hashOutput', hash, true);
        } else {
            showResult('hashOutput', 'Input cannot be empty', false);
        }
    }
  </script>
</body>

</html>
```

Input format to provide:
Convert JSON Text to JavaScript Object********

```
{
  "name": "Alice",
  "age": 30,
  "city": "New York"
}
```

Convert JSON Results into Date********

```
{
  "date": "2024-09-01"
}
```

Convert JSON to CSV********

```
[
  {"name": "Alice", "age": 30, "city": "New York"},
  {"name": "Bob", "age": 25, "city": "San Francisco"},
  {"name": "Charlie", "age": 35, "city": "Chicago"}
]
```

Convert CSV to JSON********

name,age,city
Alice,30,New York
Bob,25,San Francisco
Charlie,35,Chicago

Create Hash from String********

Bangalore