

Exno: 4a)	Dynamic form creation using javascript
Date: 28.01.2025	

Aim:

To develop a cgpa calculator using html , css and javascript to calculate the cgpa with credit and grade with subject name.

Procedure:

1. User enters subject name, selects grade, and inputs credit.
2. Click "Add / Edit Subject" → Adds data to the table.
3. User can edit or delete subjects using respective buttons.
4. Click "Calculate CGPA" → Displays CGPA based on entered subjects.
5. Click "Reset" → Clears all data and resets CGPA.

Code:**Index.html**

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width,
                                initial-scale=1.0">
  <title>CGPA Calculator</title>
  <link rel="stylesheet" href="/style.css">
</head>
<style>
  body {
    font-family: 'Segoe UI', Tahoma, Geneva, Verdana, sans-serif;
    background-color: #f0f0f0;
    margin: 20px;
    display: flex;
    align-items: center;
    justify-content: center;
    height: 100vh;
  }

  #calculator {
    background-color: #ffffff;
    padding: 25px;
    width: 500px;
    border-radius: 10px;
    box-shadow: 0 0 20px rgba(0, 0, 0, 0.1);
    text-align: center;
  }

  button {
    margin-top: 15px;
    padding: 12px 20px;
```

```
background-color: #4caf50;
color: #fff;
border: none;
border-radius: 5px;
cursor: pointer;
font-size: 14px;
}

li {
margin-bottom: 10px;
list-style-type: none;
}

input,
select {
width: calc(100% - 15px);
padding: 10px;
margin-bottom: 15px;
border: 1px solid #ccc;
border-radius: 5px;
box-sizing: border-box;
font-size: 14px;
}

h2,
h3 {
margin-bottom: 20px;
color: #333;
}

#cgpa {
font-size: 24px;
font-weight: bold;
color: #4caf50;
}

#subjectList {
text-align: left;
}

button.edit,
button.delete {
padding: 8px 15px;
margin-left: 5px;
font-size: 12px;
cursor: pointer;
}

button.delete {
background-color: #d9534f;
}

.error {
color: #d9534f;
font-size: 16px;
```

```
}

table {
    width: 100%;
    border-collapse: collapse;
    margin-top: 20px;
}

th,
td {
    border: 1px solid #ddd;
    padding: 8px;
    text-align: left;
}

th {
    background-color: #f2f2f2;
}

</style>

<body>
    <div id="calculator">
        <span id="creditError" class="error"></span>
        <span id="inputError" class="error"></span>
        <br>
        <h2>CGPA Calculator</h2>
        <form id="cgpaForm">

            <label for="subject">Subject:</label>
            <input type="text" id="subject" required>

            <label for="grade">Grade:</label>
            <select id="grade">
                <option value="0">0</option>
                <option value="A+">A+</option>
                <option value="A">A</option>
                <option value="B">B+</option>
                <option value="B+">B</option>
                <option value="C">C</option>
            </select>

            <label for="credit">Credit:</label>
            <input type="number" id="credit" min="1" required>

            <button type="button" onclick="addSubject()">
                Add / Edit Subject
            </button>
        </form>
        <h3>Calculate CGPA</h3>
        <table id="subjectTable">
            <thead>
                <tr>
                    <th>Subject</th>

```

```
        <th>Grade</th>
        <th>Credit</th>
        <th>Action</th>
    </tr>
</thead>
<tbody id="subjectList"></tbody>
</table>

<h3>CGPA: <span id="cgpa">0.00</span></h3>

<button type="button" onclick="calculateCGPA()">
    Calculate CGPA
</button>
<button type="button" onclick="resetForm()">
    Reset
</button>
</div>
<script>
    let subjects = [];
let editIndex = -1;

function addSubject() {
    const subjectInput =
        document.getElementById('subject');
    const grade =
        document.getElementById('grade').value;
    const creditInput =
        document.getElementById('credit');
    const credit =
        parseInt(creditInput.value);

    // Validate credit input
    const inputError =
        document.getElementById('inputError')
    const creditError =
        document.getElementById('creditError');
    if (!subjectInput.value || isNaN(credit)) {
        inputError.textContent =
            'Please fill out all fields.';
        return;
    }
    else if (credit < 1 || credit > 20) {
        creditError.textContent =
            'Credit must be between 1 and 20';
        return;
    } else {
        creditError.textContent = '';
    }
    if (editIndex !== -1) {
        subjects[editIndex] =
            { subject: subjectInput.value, grade, credit };
        editIndex = -1;
    } else {
        subjects.push(
            { subject: subjectInput.value, grade, credit });
    }
}
```

```
    }

    displaySubjects();
    clearForm();
}

function displaySubjects() {
    const subjectList =
        document.getElementById('subjectList');
    subjectList.innerHTML = '';

    subjects.forEach((s, index) => {
        const row = document.createElement('tr');

        const subjectCell = document.createElement('td');
        subjectCell.textContent = s.subject;

        const gradeCell = document.createElement('td');
        gradeCell.textContent = s.grade;

        const creditCell = document.createElement('td');
        creditCell.textContent = s.credit;

        const actionCell = document.createElement('td');
        const editButton = document.createElement('button');
        editButton.className = 'edit';
        editButton.textContent = 'Edit';
        editButton.onclick = () => editSubject(index);

        const deleteButton = document.createElement('button');
        deleteButton.className = 'delete';
        deleteButton.textContent = 'Delete';
        deleteButton.onclick = () => deleteSubject(index);

        actionCell.appendChild(editButton);
        actionCell.appendChild(deleteButton);

        row.appendChild(subjectCell);
        row.appendChild(gradeCell);
        row.appendChild(creditCell);
        row.appendChild(actionCell);

        subjectList.appendChild(row);
    });
}

function editSubject(index) {
    const subjectInput =
        document.getElementById('subject');
    const selectedSubject = subjects[index];

    subjectInput.value = selectedSubject.subject;
    document.getElementById('grade').value =
        selectedSubject.grade;
    document.getElementById('credit').value =
```

```
        selectedSubject.credit;

    editIndex = index;
}

function deleteSubject(index) {
    subjects.splice(index, 1);
    displaySubjects();
}

function calculateCGPA() {
    const totalCredits = subjects.reduce(
        (sum, s) => sum + s.credit, 0);
    const weightedSum = subjects.reduce(
        (sum, s) => sum + getGradePoint(s.grade) * s.credit, 0);

    const cgpa = totalCredits === 0 ? 0 :
        (weightedSum / totalCredits).toFixed(2);
    document.getElementById('cgpa').textContent = cgpa;
}

function getGradePoint(grade) {
    // Assign grade points as per your grading system
    switch (grade) {
        case 'O': return 10.0;
        case 'A+': return 9.0;
        case 'A': return 8.0;
        case 'B': return 7.0;
        case 'B+': return 6.0;
        case 'C': return 5.0;
        default: return 0.0;
    }
}

function clearForm() {
    document.getElementById('subject').value = '';
    document.getElementById('grade').value = 'A';
    document.getElementById('credit').value = '';
}

function resetForm() {
    subjects = [];
    editIndex = -1;
    document.getElementById('subjectList').innerHTML = '';
    document.getElementById('cgpa').textContent = '0.00';
    clearForm();
}

</script>
</body>
</html>
```

Output:

CGPA Calculator

Subject:

Grade:

Credit:

[Add / Edit Subject](#)

Calculate CGPA

Subject	Grade	Credit	Action
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CGPA: 0.00

[Calculate CGPA](#) [Reset](#)

CGPA Calculator

Subject:

Grade:

Credit:

[Add / Edit Subject](#)

Calculate CGPA

Subject	Grade	Credit	Action
maths	O	3	Edit Delete
java	A	3	Edit Delete

CGPA: 9.00

[Calculate CGPA](#) [Reset](#)

Activate Windows
Go to Settings to activate Windows.

Problem Understanding (5)	Implementation & Output (5)	Time Management (5)	Viva (5)	Total (20)

Result:

Thus the program for CGPA calculator using javascript was executed successfully and output was verified..