

Web Technology Lab Manual (MCAL106)

Department: Master of Computer Applications

Semester: 1st

Subject: Web Technology

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2	Create a webpage with HTML describing your department with following specification: I. Change the background color of the page. At the bottom create a link to take user to the top of the page. II. Insert an image and create a link such that clicking on image takes user to other page. III. Also apply font styling like italics, underline and two other fonts to words you find appropriate. Also use header tags.	
3	Write a JavaScript to design a simple calculator to perform the following operations: sum, product, difference and quotient.	
4	Write a JavaScript to validate the following fields of employee on html form: email, name, mobile no., address, salary.	
5	Develop and demonstrate a HTML file that includes JavaScript script that uses functions for the following problems: I. Parameter: A string Output: Length of the String II. Parameter: A number Output: The number with its digits in the reverse order	
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II. Output: find all the prime numbers between starting and ending number.

- 7 Write a PHP program to display a digital clock which displays the current time of the server.
- 8 Write a PHP program to implement sign-In and Sign-out functionality.
- 9 Write a PHP program to keep track of the number of visitors visiting the Web page and to display this count of visitors, with proper headings.
- 10 Write a PHP code to implement AJAX functionality.
- 11 Write a PHP program to perform search operation on the student records using AJAX.
- 12 Write a PHP program to sort the student records which are stored in the database using ascending/descending order.
- 13 Calculate the grade and display the corresponding categories, such as FCD, First Class, Second Class, etc. Using HTML, CSS, JS.
- 14 Build a BMI Calculator.
- 15 Simple Tip Calculator.

Experiment 1: Design an HTML Form for Displaying Information

Question: Design an HTML form for displaying information using interactive CSS including images, tables.

Code

File Name: user_info_bootstrap.html

```
<!-- user_info_bootstrap.html -->
<!DOCTYPE html>
<html lang="en">
<head>
  <!-- Bootstrap CSS -->
  <link href="[https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.cs
</head>
<body class="bg-light d-flex justify-content-center py-4">

  <div class="card shadow border-0 sticky-top" style="width: 24rem; border-top: 5px s
    <div class="card-body">

      <h2 class="text-center text-dark mb-3">User Information</h2>

      
```

```

        style="width: 80px; height: 80px; background:#ddd;">

<table class="table table-bordered align-middle">
  <thead class="table-light">
    <tr>
      <th>Field</th>
      <th>Details</th>
    </tr>
  </thead>
  <tbody>
    <tr><td>Name</td><td>John Doe</td></tr>
    <tr><td>Email</td><td>johndoe@example.com</td></tr>
    <tr><td>Phone</td><td>(123) 456-7890</td></tr>
    <tr><td>Address</td><td>1234 Elm St, Springfield</td></tr>
  </tbody>
</table>

<label class="fw-bold mb-1">Leave a Comment:</label>
<textarea class="form-control" rows="3"></textarea>

<button class="btn btn-success w-100 mt-3">Submit</button>
</div>
</div>

<!-- Bootstrap JS -->
<script src="[https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/js/bootstrap.bundle

</body>
</html>

```

Output

Experiment 2: Department Webpage

Question: Create a webpage with HTML describing your department with following specification.

2a. Background Color & Top Link

Specification: Change the background color of the page. At the bottom create a link to take user to the top of the page.

File Name: department_a.html

```

<!-- department_a.html -->
<!DOCTYPE html>
<html>
<head>
  <title>Department of Computer Science</title>
  <style>
    body {
      background-color: #e6f7ff; /* Light Blue Background */
      font-family: Arial, sans-serif;
      color: #333;

```

```

        padding: 20px;
    }
    .footer-link {
        margin-top: 50px;
        padding: 10px;
        text-align: center;
    }
</style>
</head>
<body>
    <!-- Anchor for Top -->
    <a id="top"></a>

    <h1 style="text-align:center;">Department of Computer Science</h1>

    <h2>About Us</h2>
    <p>The Department of Computer Science is committed to excellence in research, teach

    <h3>Our Vision</h3>
    <p>We aim to be a leader in computer science education, driving innovation and cont

    <h3>Courses Offered</h3>
    <ul>
        <li>Introduction to Programming</li>
        <li>Data Structures and Algorithms</li>
        <li>Operating Systems</li>
        <li>Database Management Systems</li>
        <li>Artificial Intelligence</li>
        <li>Machine Learning</li>
    </ul>

    <h3>Contact Us</h3>
    <p>If you have any questions, feel free to reach out to our department office. You

    <!-- Link to Top -->
    <div class="footer-link">
        <a href="#top">Back to Top</a>
    </div>
</body>
</html>

```

Output

2b. Image Link

Specification: Insert an image and create a link such that clicking on image takes user to other page.

File Name: department_b.html

```

<!-- department_b.html -->
<!DOCTYPE html>
<html>
<head>
    <title>Department Gallery</title>

```

```

</head>
<body>
  <h1>Univertity Resources</h1>

  <h3>Dr.Babasaheb Ambedkar Technological University</h3>
  <p>Click the image below to visit the official university website:</p>

  <!-- Image acting as a link -->
  <a href="[https://dbatu.ac.in/](https://dbatu.ac.in/)" target="_blank">
    

</body>
</html>

```

Output

2c. Font Styling & Headers

Specification: Apply font styling like italics, underline and two other fonts to words you find appropriate. Also use header tags.

File Name: department_c.html

```

<!-- department_c.html -->
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>CS Dept</title>
  <link rel="stylesheet" href="[https://cdn.jsdelivrivr.net/npm/bootstrap@5.3.0/dist/css/bc
</head>

<body class="bg-light p-4">
<div class="container">

  <h1 class="text-center text-success mb-4" style="font-family: Georgia;">Welcome to the

  <div class="card p-3 mb-3">
    <h2 class="text-teal" style="color:#00796b;">About Us</h2>
    <p>The <span class="fst-italic">Department of Computer Science</span> provides quali
      <span class="text-decoration-underline">cutting-edge skills</span>.</p>
  </div>

  <div class="card p-3 mb-3">
    <h2 style="color:#00796b;">Our Vision</h2>
    <p>We aim to lead in <span style="font-family:'Courier New';">AI</span> and
      <span style="font-family:'Courier New';">ML</span> research.</p>
  </div>

  <div class="card p-3 mb-3">
    <h2 style="color:#00796b;">What We Offer</h2>

```

```

    <p>Courses in <span class="fst-italic" style="font-family:'Times New Roman';">Cybers
      <span class="fst-italic" style="font-family:'Times New Roman';">Data Science</span>
      <span class="fst-italic" style="font-family:'Times New Roman';">Software Engineer
    </div>

    <div class="card p-3 mb-3">
      <h2 style="color:#00796b;">Contact Us</h2>
      <p>Email: <span class="text-decoration-underline">info@csdepartment.edu</span><br>
        Phone: <span class="fst-italic">(123) 456-7890</span></p>
    </div>

  </div>
</body>
</html>

```

Output

Experiment 3: Simple Calculator (JavaScript)

Question: Write a JavaScript to design a simple calculator to perform: sum, product, difference, and quotient.

Code

File Name: calculator.html

```

<!-- calculator.html -->
<!DOCTYPE html>
<html>
<head>
  <script>
    function calc(op) {
      var n1 = parseFloat(document.getElementById('n1').value);
      var n2 = parseFloat(document.getElementById('n2').value);
      var res = 0;
      switch(op) {
        case '+': res = n1 + n2; break;
        case '-': res = n1 - n2; break;
        case '*': res = n1 * n2; break;
        case '/': res = n1 / n2; break;
      }
      document.getElementById('result').value = res;
    }
  </script>
</head>
<body>
  <h2>Simple Calculator</h2>
  <input type="number" id="n1" placeholder="Num 1">
  <input type="number" id="n2" placeholder="Num 2"><br><br>

  <button onclick="calc('+')">Sum</button>
  <button onclick="calc('-')">Difference</button>
  <button onclick="calc('*')">Product</button>

```

```

    <button onclick="calc('/')">Quotient</button>
    <br><br>
    Result: <input type="text" id="result" readonly>
  </body>
</html>

```

Output

Experiment 4: Form Validation (JavaScript)

Question: Validate fields: email, name, mobile no., address, salary.

Code

File Name: validation.html

```

<!-- validation.html -->
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<title>Validation Form</title>

<link href="[https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css]"(f

<script>
function validate() {
    let f = document.empForm;
    let name = f.name.value.trim();
    let email = f.email.value.trim();
    let mobile = f.mobile.value.trim();

    if (!/^[A-Za-z\s]+$/.test(name)) { alert("Invalid Name"); return false; }
    if (!/^[^@\w+([\.-]?\w+)*@\w+([\.-]?\w+)*(\.\w{2,3})+$/.test(email)) { alert("Invalid
    if (!/^\d{10}$/.test(mobile)) { alert("Invalid Mobile"); return false; }

    alert("Form Validated Successfully!");
    return true;
}
</script>
</head>

<body class="bg-light p-4">

<div class="container d-flex justify-content-center">
    <form name="empForm" onsubmit="return validate()" class="bg-white p-4 shadow-sm round
        <h4 class="text-center mb-3">Employee Form</h4>

        <input class="form-control mb-2" type="text" name="name" placeholder="Name">
        <input class="form-control mb-2" type="text" name="email" placeholder="Email">
        <input class="form-control mb-2" type="text" name="mobile" placeholder="Mobile">
        <input class="form-control mb-2" type="text" name="address" placeholder="Address">
        <input class="form-control mb-3" type="number" name="salary" placeholder="Salary">

```

```

        <button class="btn btn-primary w-100">Register</button>
    </form>
</div>

</body>
</html>

```

Output

Experiment 5: String & Number Functions (JavaScript)

Question: I. Parameter: A string -> Output: Length of String II. Parameter: A number -> Output: Reverse order

Code

File Name: functions.html

```

<!-- functions.html -->
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<title>Functions</title>
<link href="[https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css]"(r
</head>

<body class="bg-light p-4">

<div class="container">

    <!-- String Length -->
    <div class="mb-4 p-3 bg-white shadow-sm rounded">
        <h4>String Length</h4>
        <input type="text" id="strInput" class="form-control mb-2" placeholder="Enter t
        <button class="btn btn-primary btn-sm"
            onclick="document.getElementById('strOut').innerText =
                document.getElementById('strInput').value.length">
            Get Length
        </button>
        <p class="mt-2">Length: <span id="strOut"></span></p>
    </div>

    <!-- Reverse Number -->
    <div class="p-3 bg-white shadow-sm rounded">
        <h4>Reverse Number</h4>
        <input type="number" id="numInput" class="form-control mb-2" placeholder="Enter
        <button class="btn btn-primary btn-sm" onclick="reverseNum()">Reverse</button>
        <p class="mt-2">Result: <span id="numOut"></span></p>
    </div>

</div>

```



```

<script>
function reverseNum() {
    let n = document.getElementById('numInput').value;
    document.getElementById('numOut').innerText = n.split('').reverse().join('');
}
</script>

</body>
</html>

```

Output

Experiment 6: Prime Numbers (JavaScript)

Question: Find all prime numbers between a starting and ending number.

Code

File Name: primes.html

```

<!-- primes.html -->
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<title>Prime Finder</title>
<link href="[https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css]"(r

<script>
function findPrimes() {
    let start = parseInt(document.getElementById('start').value);
    let end = parseInt(document.getElementById('end').value);
    let primes = [];

    for (let i = start; i <= end; i++) {
        let flag = 0;
        for (let j = 2; j < i; j++) {
            if (i % j == 0) { flag = 1; break; }
        }
        if (i > 1 && flag == 0) primes.push(i);
    }

    document.getElementById('pRes').innerText = primes.join(", ");
}
</script>
</head>

<body class="bg-light p-4">

<div class="container d-flex justify-content-center">
    <div class="bg-white p-4 shadow-sm rounded" style="width:300px">

        <h4 class="text-center mb-3">Prime Number Finder</h4>

```

```

        <input type="number" class="form-control mb-2" id="start" placeholder="Start">
        <input type="number" class="form-control mb-3" id="end" placeholder="End">

        <button class="btn btn-primary w-100 mb-2" onclick="findPrimes()">Find Primes</button>

        <p class="mt-2">Result: <span id="pRes" class="fw-bold"></span></p>

    </div>
</div>

</body>
</html>

```

Output

Experiment 7: Digital Clock (PHP)

Question: Write a PHP program to display a digital clock (server time).

Code

File Name: clock.php

```

<!-- clock.php -->
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<title>Bootstrap Digital Clock</title>
<meta name="viewport" content="width=device-width, initial-scale=1">

<!-- Bootstrap CSS -->
<link href="[https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css]"(https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css)" rel="stylesheet">

<style>
    #clock {
        font-size: 55px;
        font-family: monospace;
        color: #00ff00;
        background: #000;
        padding: 20px 40px;
        border-radius: 12px;
        display: inline-block;
        box-shadow: 0 0 15px rgba(0,255,0,0.4);
        letter-spacing: 3px;
    }
</style>
</head>

<body class="bg-light d-flex flex-column justify-content-center align-items-center vh-100">

    <h2 class="text-primary mb-4">Server Time Digital Clock</h2>

```

```

<div id="clock">
    <?php
        date_default_timezone_set("Asia/Kolkata");
        echo date("H:i:s");
    ?>
</div>

<script>
function updateClock() {
    let now = new Date();
    let h = String(now.getHours()).padStart(2, '0');
    let m = String(now.getMinutes()).padStart(2, '0');
    let s = String(now.getSeconds()).padStart(2, '0');

    document.getElementById("clock").innerHTML = `${h}:${m}:${s}`;
}
setInterval(updateClock, 1000);
updateClock();
</script>

</body>
</html>

```

Output

Experiment 8: Sign-In and Sign-Out (PHP)

Question: Implement Sign-In and Sign-Out functionality using PHP Sessions.

Code

File Name: login.php

```

<!-- login.php -->
<?php
session_start();

if (isset($_POST['login'])) {
    $user = $_POST['username'];
    $pass = $_POST['password'];

    if ($user === "admin" && $pass === "1234") {
        $_SESSION['user'] = $user;
    } else {
        $error = "Invalid Credentials!";
    }
}

if (isset($_GET['logout'])) {
    session_destroy();
    header("Location: login.php");
}

```

```
?>
```

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<title>Login System</title>

<link href="[https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css]"(r
</head>

<body class="bg-light d-flex justify-content-center align-items-center vh-100">

<div class="container" style="max-width: 350px;">

<?php if(isset($_SESSION['user'])): ?>

    <div class="card p-4 text-center shadow-sm">
        <h3 class="mb-3">Welcome, <?php echo $_SESSION['user']; ?>!</h3>
        <a href="login.php?logout=true" class="btn btn-danger w-100">Sign Out</a>
    </div>

<?php else: ?>

    <div class="card p-4 shadow-sm">
        <h4 class="text-center mb-3">User Login</h4>

        <?php if(isset($error)): ?>
        <div class="alert alert-danger py-2"><?php echo $error; ?></div>
        <?php endif; ?>

        <form method="post">
            <input type="text" name="username" class="form-control mb-2" placeholder="L
            <input type="password" name="password" class="form-control mb-3" placeholde

            <button type="submit" name="login" class="btn btn-primary w-100">Sign In</b
        </form>
    </div>

<?php endif; ?>

</div>

</body>
</html>
```

Output

Experiment 9: Visitor Counter (PHP)

Question: Keep track of the number of visitors visiting the Web page.

Code

File Name: counter.php

```
<!-- counter.php -->
<?php
$file = "counter.txt";

if(!file_exists($file)) {
    file_put_contents($file, 0);
}

$count = (int) file_get_contents($file);
$count++;
file_put_contents($file, $count);
?>

<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<title>Visitor Counter</title>

<link href="[https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css]"(r
</head>

<body class="bg-light d-flex justify-content-center align-items-center vh-100">

<div class="card p-4 shadow-sm text-center" style="width: 330px;">
    <h2 class="text-primary mb-3">Welcome to Our Website</h2>
    <h4 class="fw-bold">You are visitor number:</h4>
    <div class="display-6 text-success mt-2"><?php echo $count; ?></div>
</div>

</body>
</html>
```

Output

Experiment 10: AJAX Implementation (PHP)

Question: PHP code to implement AJAX functionality (Get Server Time).

Code

File Name: index.html

```
<!-- index.html -->
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<title>PHP AJAX Example</title>
<meta name="viewport" content="width=device-width, initial-scale=1">
```

```

<!-- Bootstrap CSS -->
<link href="[https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css]"(r
</head>

<body class="bg-light d-flex flex-column justify-content-center align-items-center vh-1

    <div class="card p-4 shadow-sm text-center" style="width: 350px;">
        <h3 class="mb-3 text-primary">PHP AJAX Example</h3>
        <p>Click the button to fetch server time:</p>

        <button class="btn btn-success w-100 mb-3" onclick="fetchServerTime()">Get Serv

        <div id="result" class="fs-4 text-info"></div>
    </div>

<script>
function fetchServerTime() {
    var xhttp = new XMLHttpRequest();

    xhttp.onreadystatechange = function () {
        if (this.readyState === 4 && this.status === 200) {
            document.getElementById("result").innerHTML = this.responseText;
        }
    };

    xhttp.open("GET", "server.php", true);
    xhttp.send();
}
</script>

</body>
</html>

```

File Name: server.php

```

<!-- server.php -->
<?php
echo "Current Server Time: " . date("h:i:s A");
?>

```

Output

Experiment 11: AJAX Search Student (PHP)

Question: Perform search operation on the student records using AJAX.

Step 1: Database Setup (SQL)

Execute the following SQL commands to set up the database and table.

File Name: setup.sql

```
-- create database and students table
CREATE DATABASE IF NOT EXISTS school;
USE school;

CREATE TABLE IF NOT EXISTS students (
  id INT AUTO_INCREMENT PRIMARY KEY,
  name VARCHAR(100) NOT NULL,
  age TINYINT NOT NULL,
  grade VARCHAR(10) NOT NULL
);

-- sample rows
INSERT INTO students (name, age, grade) VALUES
('Alice Johnson', 15, 'A'),
('Bob Kumar', 16, 'B'),
('Charlie Smith', 14, 'A'),
('Dana Lee', 15, 'B+'),
('Esha Patil', 17, 'A-');
```

Step 2: Frontend Code

File Name: index.html

```
<!-- index.html -->
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="utf-8" />
  <meta name="viewport" content="width=device-width,initial-scale=1" />
  <title>Student Search (AJAX)</title>
  <link href="[https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css]"
</head>
<body class="bg-light p-4">

<div class="container" style="max-width:700px;">
  <div class="card shadow-sm p-4">
    <h3 class="mb-3 text-center">Search Student Records</h3>

    <div class="input-group mb-3">
      <input id="searchInput" type="text" class="form-control" placeholder="Enter stude
      <button id="btnSearch" class="btn btn-success">Search</button>
    </div>

    <div id="results" class="mt-2"></div>
  </div>
</div>

<script>
const btn = document.getElementById('btnSearch');
const input = document.getElementById('searchInput');
const results = document.getElementById('results');
```

```

async function searchStudents() {
    const q = input.value.trim();
    results.innerHTML = '<div class="text-muted">Searching...</div>';

    try {
        const res = await fetch('search.php?query=' + encodeURIComponent(q));
        if (!res.ok) throw new Error('Server error');
        const students = await res.json();

        if (!Array.isArray(students) || students.length === 0) {
            results.innerHTML = '<div class="alert alert-warning mb-0">No students found.</div>';
            return;
        }

        // build table
        let html = '<div class="table-responsive"><table class="table table-sm table-striped" >
            <thead class="table-light"><tr><th>Name</th><th>Age</th><th>Grade</th></tr></thead>
            <tbody>
                <tr><td>${escapeHtml(s.name)}</td><td>${escapeHtml(s.age)}</td><td>${escapeHtml(s.grade)}</td></tr>
            </tbody>
        </table></div>';
        students.forEach(s => {
            html += '<tr><td>${escapeHtml(s.name)}</td><td>${escapeHtml(s.age)}</td><td>${escapeHtml(s.grade)}</td></tr>';
        });
        results.innerHTML = html;

    } catch (err) {
        results.innerHTML = '<div class="alert alert-danger mb-0">Error: ${escapeHtml(err.message)}</div>';
    }
}

// small helper to avoid injecting raw HTML
function escapeHtml(str) {
    return String(str).replaceAll('&', '&amp;').replaceAll('<', '&lt;').replaceAll('>', '&gt;');
}

btn.addEventListener('click', searchStudents);
input.addEventListener('keydown', e => { if (e.key === 'Enter') searchStudents(); });
</script>

</body>
</html>

```

Step 3: Backend Code

File Name: search.php

```

<?php
// search.php
header('Content-Type: application/json; charset=utf-8');

$servername = "localhost";
$username = "root";
$password = "system"; // change if necessary
$dbname = "school";

mysqli = new mysqli($servername, $username, $password, $dbname);
if ($mysqli->connect_errno) {

```



```

        http_response_code(500);
        echo json_encode(["error" => "DB connection failed"]);
        exit;
    }

    $searchQuery = isset($_GET['query']) ? trim($_GET['query']) : '';

    $sql = "SELECT id, name, age, grade FROM students WHERE name LIKE ?";
    $stmt = $mysqli->prepare($sql);
    $like = "%{$searchQuery}%";
    $stmt->bind_param('s', $like);
    $stmt->execute();
    $result = $stmt->get_result();

    $students = [];
    while ($row = $result->fetch_assoc()) {
        $students[] = $row;
    }

    $stmt->close();
    $mysqli->close();

    echo json_encode($students);
    ?>

```

Output

Experiment 12: Sort Student Records (PHP)

Question: Sort student records stored in database using ascending/descending order.

Code

File Name: sort.php

```

<!-- sort.php -->
<form method="get">
    <select name="order">
        <option value="ASC">Ascending</option>
        <option value="DESC">Descending</option>
    </select>
    <input type="submit" value="Sort">
</form>

<?php
$conn = new mysqli("localhost", "root", "", "college");
$order = isset($_GET['order']) ? $_GET['order'] : 'ASC';
$sql = "SELECT * FROM students ORDER BY name $order";
$result = $conn->query($sql);

echo "<table border='1'><tr><th>ID</th><th>Name</th></tr>";
while($row = $result->fetch_assoc()) {
    echo "<tr><td>".$row['id'].</td><td>".$row['name'].</td></tr>";
}

```

```
echo "</table>";  
$conn->close();  
?>
```

Output

Experiment 13: Grade Calculator (HTML/CSS/JS)

Question: Calculate grade (FCD, First Class, etc.) based on CGPA.

Code

File Name: grades.html

```
<!-- grades.html -->  
<!DOCTYPE html>  
<html lang="en">  
<head>  
<meta charset="UTF-8">  
<title>Grade Calculator</title>  
<meta name="viewport" content="width=device-width, initial-scale=1">  
  
<!-- Bootstrap CSS -->  
<link href="[https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css]"(r  
</head>  
  
<body class="bg-light d-flex justify-content-center align-items-center vh-100">  
  
<div class="card shadow p-4 text-center" style="width: 350px;">  
  <h4 class="mb-3">CGPA to Grade Calculator</h4>  
  
  <input type="number" id="cgpaInput" class="form-control mb-3"  
    placeholder="Enter CGPA (0-10)" min="0" max="10" step="0.01">  
  
  <button class="btn btn-success w-100 mb-3" onclick="calculateGrade()">  
    Calculate Grade  
  </button>  
  
  <p id="result" class="fw-semibold"></p>  
</div>  
  
<script>  
function calculateGrade() {  
  let cgpa = parseFloat(document.getElementById("cgpaInput").value);  
  let result = "";  
  
  if (isNaN(cgpa) || cgpa < 0 || cgpa > 10) {  
    result = "Please enter a valid CGPA (0-10)";  
  } else {  
    let percentage = cgpa * 10;  
  
    if (percentage >= 70)  
      result = `Percentage: ${percentage}% → First Class with Distinction (FCD)`;  
    else if (percentage >= 60)
```

```

        result = `Percentage: ${percentage}% → First Class (FC)`;
    else if (percentage >= 50)
        result = `Percentage: ${percentage}% → Second Class (SC)`;
    else if (percentage >= 40)
        result = `Percentage: ${percentage}% → Pass Class (PC)`;
    else
        result = `Percentage: ${percentage}% → Fail`;
    }

    document.getElementById("result").innerText = result;
}
</script>

</body>
</html>

```

Output

Experiment 14: BMI Calculator

Question: Build a BMI Calculator. Formula: $\text{Weight} / (\text{Height} * \text{Height})$

Code

File Name: bmi.html

```

<!-- bmi.html -->
<script>
    function calcBMI() {
        var h = parseFloat(document.getElementById('h').value);
        var w = parseFloat(document.getElementById('w').value);
        var bmi = w / (h * h);
        document.getElementById('bmiRes').innerText = bmi.toFixed(2);
    }
</script>
<h2>BMI Calculator</h2>
Height (meters): <input type="number" id="h" step="0.01"><br>
Weight (kg): <input type="number" id="w"><br>
<button onclick="calcBMI()">Calculate BMI</button>
<h3>Your BMI: <span id="bmiRes"></span></h3>

```

Output

Experiment 15: Tip Calculator

Question: Simple Tip Calculator.

Code

File Name: tip.html

```
<!-- tip.html -->
<script>
  function calcTip() {
    var bill = parseFloat(document.getElementById('bill').value);
    var tipPerc = parseFloat(document.getElementById('tip').value);
    var tipAmt = bill * (tipPerc / 100);
    var total = bill + tipAmt;

    document.getElementById('tipAmt').innerText = tipAmt.toFixed(2);
    document.getElementById('total').innerText = total.toFixed(2);
  }
</script>
<h2>Tip Calculator</h2>
Bill Amount ($): <input type="number" id="bill"><br>
Tip Percentage (%): <input type="number" id="tip"><br>
<button onclick="calcTip()">Calculate</button>
```