1. Create a form with the elements of Textboxes, Radio buttons, Checkboxes, and so on. Write JavaScript code to validate the format in email, and mobile number in 10 characters, If a textbox has been left empty, popup an alert indicating when email, mobile number and textbox has been left empty.

<!DOCTYPE html>

<html>

<head>

    <title>Form Validation</title>

    <script>

        function validateForm() {

            var name = document.getElementById('name').value;

            var email = document.getElementById('email').value;

            var mobile = document.getElementById('mobile').value;

            if (name === '' || email === '' || mobile === '') {

                alert('Please fill in all the required fields (Name, Email, Mobile)');

                return false;

            }

            var emailPattern = /^[^\s@]+@[^\s@]+\.[^\s@]+$/;

            if (!emailPattern.test(email)) {

                alert('Please enter a valid email address');

                return false;

            }

            if (mobile.length !== 10) {

                alert('Mobile number should be 10 characters long');

                return false;

            }

            return true;

        }

    </script>

</head>

<body>

    <form onsubmit="return validateForm()">

        <label for="name">Name:</label>

        <input type="text" id="name" name="name"><br><br>

        <label for="email">Email:</label>

        <input type="text" id="email" name="email"><br><br>

        <label for="mobile">Mobile Number:</label>

        <input type="text" id="mobile" name="mobile"><br><br>

        <label>Gender:</label>

        <input type="radio" id="male" name="gender" value="male">

        <label for="male">Male</label>

        <input type="radio" id="female" name="gender" value="female">

        <label for="female">Female</label><br><br>

        <label>Hobbies:</label>

        <input type="checkbox" id="hobby1" name="hobby1" value="hobby1">

        <label for="hobby1">Reading</label>

        <input type="checkbox" id="hobby2" name="hobby2" value="hobby2">

        <label for="hobby2">Gardening</label><br><br>

        <input type="submit" value="Submit">

    </form>

</body>

</html>

2. Develop an HTML Form, which accepts any Mathematical expression. Write JavaScript code to Evaluate the expression and Display the result.

<html>

<head>

    <title>Expression Evalution</title>

    <script type="text/javascript">

        function Evalution() {

            var x = document.getElementById("expr").value;

            document.getElementById("result").value = eval(x);

        }

    </script>

</head>

<body>

    <form name="myForm">

        Enter any valid Expression: <input type="text" id="expr"><br> result: <input type="text" id="result"><br>

        <input type="button" value="calculate" onclick="Evalution()">

    </form>

</body>

</html>

3. Create a page with dynamic effects. Write the code to include layers and basic animation.

<html>

<head>

    <title>Animation</title>

    <style>

        #layer1{

            position: absolute;

            transition: 1s;

        }

        #layer2{

            position: absolute;

            left:400px;

            transition: 1s;

        }

        #layer3{

            position: absolute;

            left:800px;

            transition: 1s;

        }

    </style>

    <script>

        function moveimage(layer){

            var top=parseInt(window.prompt("Enter the Top Value"))

            var scale=parseInt(window.prompt("Enter the Scale Value"))

            layer.style.top=top+'px'

            layer.style.transform='scale('+scale +')'

        }

    </script>

</head>

<body>

    <img src="img1.jpg" id="layer1" width="300px" height="200px" onclick="moveimage(layer1);">

    <img src="img2.jpg" id="layer2" width="300px" height="200px" onclick="moveimage(layer2);">

    <img src="img3.jpg" id="layer3" width="300px" height="200px" onclick="moveimage(layer3);">

</body>

</html>

4. Write a JavaScript code to find the sum of N natural Numbers. (Use userdefined function)

<!DOCTYPE html>

<html lang="en">

<head>

    <title>Sum of n natural numbers</title>

</head>

<body>

    <form >

        <input type="button" value="Find the sum of n natural numbers " onclick="sum();">

    </form>

    <script>

        function sum(){

            var n=parseInt(window.prompt("Enter the number"))

            var sum\_of\_n=(n\*(n+1))/2

            window.alert("Sum of "+ n + " natural numbers is "+sum\_of\_n)

        }

    </script>

</body>

</html>

5. Write a JavaScript code block using arrays and generate the current date in words, this should include the day, month and year.

<!DOCTYPE html>

<html lang="en">

<head>

    <title>Generate the current date in words</title>

</head>

<body>

    <h2>To Generate The Current Date In Words Click Below</h2>

    <button onclick="generate();">Click</button>

    <p id="display"></p>

    <script>

        function generate() {

            const daysOfWeek = [

                'Sunday', 'Monday', 'Tuesday', 'Wednesday', 'Thursday', 'Friday', 'Saturday'

            ];

            const monthsOfYear = [

                'January', 'February', 'March', 'April', 'May', 'June', 'July',

                'August', 'September', 'October', 'November', 'December'

            ];

            const currentDate = new Date();

            const day = daysOfWeek[currentDate.getDay()];

            const month = monthsOfYear[currentDate.getMonth()];

            const year = currentDate.getFullYear();

            const date = currentDate.getDate();

            document.getElementById('display').innerHTML='Today is ' + day +' , '+ month +' '+ date +' , '+ year

        }

    </script>

</body>

</html>

6. Create a form for Student information. Write JavaScript code to find Total, Average, Result and Grade.

<!DOCTYPE html>

<html lang="en">

<head>

    <title>Student Form</title>

</head>

<body>

    <form id="studentForm">

        <label >Student Name</label>

        <input type="text" id="name" value=""><br><br>

        <label >AI:</label>

        <input type="number" id="AI" value=""><br><br>

        <label >WP:</label>

        <input type="number" id="WP" value=""><br><br>

        <label >DA:</label>

        <input type="number" id="DA" value=""><br><br>

        <label >DM:</label>

        <input type="number" id="DM" value=""><br><br>

        <button type="button" onclick="calculate();">Calculate</button>

      </form>

      <p>Student Name: <span id="student\_name"></span></p>

      <p>Total Marks: <span id="total"></span></p>

      <p>Average Marks: <span id="average"></span></p>

      <p>Result: <span id="result"></span></p>

      <p>Grade: <span id="grade"></span></p>

      <script>

        function calculate() {

          const name =document.getElementById("name").value;

          const AI = parseFloat(document.getElementById("AI").value);

          const WP = parseFloat(document.getElementById("WP").value);

          const DA = parseFloat(document.getElementById("DA").value);

          const DM = parseFloat(document.getElementById("DM").value);

          const total = AI + WP + DA + DM;

          const average = total / 4;

          const result = average >= 40 ? 'Pass' : 'Fail';

          let grade;

          if (result === 'Pass') {

            if (average >= 90) {

              grade = 'A+';

            } else if (average >= 80) {

              grade = 'A';

            } else if (average >= 70) {

              grade = 'B';

            } else if (average >= 60) {

              grade = 'C';

            } else if (average >= 50) {

              grade = 'D';

            } else {

              grade = 'E';

            }

          } else {

            grade = 'F';

          }

          document.getElementById("student\_name").textContent = name;

          document.getElementById("total").textContent = total;

          document.getElementById("average").textContent = average.toFixed(2);

          document.getElementById("result").textContent = result;

          document.getElementById("grade").textContent = grade;

        }

      </script>

</body>

</html>

7. Create a form for Employee information. Write JavaScript code to find DA, HRA, PF, TAX, Gross pay, Deduction and Net pay.

<!DOCTYPE html>

<html lang="en">

<head>

    <title>Employee Information</title>

</head>

<body>

    <form id="employeeForm">

        <label for="employeeName">Employee Name:</label>

        <input type="text" id="employeeName" name="employeeName"><br><br>

        <label for="basicSalary">Basic Salary:</label>

        <input type="number" id="basicSalary" name="basicSalary"><br><br>

        <button type="button" onclick="calculatePay()">Calculate Pay</button>

      </form>

      <p>Dearness Allowance (DA): <span id="da"></span></p>

      <p>House Rent Allowance (HRA): <span id="hra"></span></p>

      <p>Provident Fund (PF): <span id="pf"></span></p>

      <p>Tax: <span id="tax"></span></p>

      <p>Gross Pay: <span id="grossPay"></span></p>

      <p>Deductions: <span id="deductions"></span></p>

      <p>Net Pay: <span id="netPay"></span></p>

      <script>

        function calculatePay() {

          const basicSalary = parseFloat(document.getElementById("basicSalary").value);

          const DA = 0.1 \* basicSalary;

          const HRA = 0.2 \* basicSalary;

          const PF = 0.08 \* basicSalary;

          const taxRate = 0.05;

          const tax = taxRate \* basicSalary;

          const grossPay = basicSalary + DA + HRA;

          const deductions = PF + tax;

          const netPay = grossPay - deductions;

          document.getElementById("da").textContent = DA;

          document.getElementById("hra").textContent = HRA;

          document.getElementById("pf").textContent = PF;

          document.getElementById("tax").textContent = tax;

          document.getElementById("grossPay").textContent = grossPay;

          document.getElementById("deductions").textContent = deductions;

          document.getElementById("netPay").textContent = netPay;

        }

      </script>

</body>

</html>

8. Write a program in PHP to change background color based on day of the week using if else if statements and using arrays .

<!DOCTYPE html>

<html>

<head>

    <title>Change Background Color Based on Day of the Week</title>

</head>

<body>

    <?php

    $dayOfWeek = date('w');

    $colors=[

        'purple',

        'red',

        'orange',

        'yellow',

        'green',

        'blue',

        'white'

    ];

    if ($dayOfWeek == 0) {

        $backgroundColor = $colors[0]; // Sunday

    } else if ($dayOfWeek == 1) {

        $backgroundColor = $colors[1]; // Monday

    } else if ($dayOfWeek == 2) {

        $backgroundColor = $colors[2]; // Tuesday

    } else if ($dayOfWeek == 3) {

        $backgroundColor = $colors[3]; // Wednesday

    } else if ($dayOfWeek == 4) {

        $backgroundColor = $colors[4]; // Thursday

    } else if ($dayOfWeek == 5) {

        $backgroundColor = $colors[5]; // Friday

    } else if ($dayOfWeek == 6) {

        $backgroundColor = $colors[6]; // Saturday

    }

    ?>

    <div style="width: 100%; height: 100vh; background-color: <?php echo $backgroundColor; ?>;">

        <h1 style="text-align: center; padding-top: 40vh; color: #ffffff;">Today is <?php echo date('l'); ?></h1>

    </div>

</body>

</html>

9. Write a simple program in PHP for i) generating Prime number ii) generate Fibonacci series.

<?php

function isPrime($num) {

    if ($num <= 1) {

        return false;

    }

    for ($i = 2; $i <= sqrt($num); $i++) {

        if ($num % $i == 0) {

            return false;

        }

    }

    return true;

}

function generatePrimes($limit) {

    $primes = [];

    for ($i = 2; $i <= $limit; $i++) {

        if (isPrime($i)) {

            $primes[] = $i;

        }

    }

    return $primes;

}

$limit = 50;

$primeNumbers = generatePrimes($limit);

echo "Prime numbers up to $limit: " . implode(', ', $primeNumbers);

?>

<br><br><br>

<?php

function generateFibonacci($n) {

    $fibonacci = [];

    $fibonacci[0] = 0;

    $fibonacci[1] = 1;

    for ($i = 2; $i < $n; $i++) {

        $fibonacci[$i] = $fibonacci[$i - 1] + $fibonacci[$i - 2];

    }

    return $fibonacci;

}

$numberOfFibonacci = 10;

$fibonacciSeries = generateFibonacci($numberOfFibonacci);

echo "First $numberOfFibonacci Fibonacci numbers: " . implode(', ', $fibonacciSeries);

?>

10. Write a PHP program to remove duplicates from a sorted lis

<?php

function removeDuplicates($sortedList) {

    return array\_unique($sortedList);

}

$sortedList = [1, 2, 2, 3, 4, 4, 4, 5, 5, 6, 7, 7, 8, 9, 9];

$uniqueList = removeDuplicates($sortedList);

echo "Original sorted list: " . implode(', ', $sortedList) . "<br>";

echo "List after removing duplicates: " . implode(', ', $uniqueList);

?>

11. Write a PHP Script to print the following pattern on the Screen:

\*\*\*\*\*

\*\*\*\*

\*\*\*

\*\*

\*

<?php

$rows = 5;

for ($i = 1; $i <= $rows; $i++) {

    for ($k = 1; $k < $i; $k++) {

        echo "&nbsp;";

    }

    for ($j = $rows; $j >= $i; $j--) {

        echo "\*";

    }

    echo "<br>";

}

?>

12. Write a simple program in PHP for Searching of data by different criteria

<?php

$users = [

    ['id' => 1, 'name' => 'John', 'age' => 25, 'city' => 'New York'],

    ['id' => 2, 'name' => 'Alice', 'age' => 30, 'city' => 'San Francisco'],

    ['id' => 3, 'name' => 'Bob', 'age' => 28, 'city' => 'Los Angeles'],

    ['id' => 4, 'name' => 'Eve', 'age' => 22, 'city' => 'Chicago'],

];

$criteria = 'city';

$searchValue = 'New York';

$results = array\_filter($users, function ($user) use ($criteria, $searchValue) {

    return $user[$criteria] === $searchValue;

});

if (!empty($results)) {

    echo "Search results for $criteria: $searchValue <br>";

    foreach ($results as $result) {

        echo "ID: " . $result['id'] . ", Name: " . $result['name'] . ", Age: " . $result['age'] . ", City: " . $result['city'] . "<br>";

    }

} else {

    echo "No results found for $criteria: $searchValue";

}

?>

13. Write a function in PHP to generate captcha code

<?php

function generateCaptcha($length = 6) {

    $characters = '0123456789abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ';

    $captcha = '';

    $charactersLength = strlen($characters);

    for ($i = 0; $i < $length; $i++) {

        $captcha .= $characters[rand(0, $charactersLength - 1)];

    }

    return $captcha;

}

$captchaCode = generateCaptcha();

echo "Generated Captcha Code: $captchaCode";

?>

14. Write a Program to store and read image from Database.

<?php

$dbHost="localhost";

$dbUsername="root";

$dbpassword="";

$dbname="image\_storage";

$db=new mysqli($dbHost,$dbUsername,$dbpassword,$dbname);

if($db->connect\_error){

    die("Connection failed: ". $db->connect\_error);

}

if(isset($\_POST['submit'])){

    $file\_name=$\_FILES['image']['name'];

    $tempname=$\_FILES['image']['tmp\_name'];

    $folder='uploads/'.$file\_name;

    $query=mysqli\_query($db,"Insert into imagestorage(image) values('$file\_name')");

    move\_uploaded\_file($tempname,$folder);

    if($query){

        echo "<h2>File uploaded </h2>";

    }

    else{

        echo "<h2>Failed...</h2>";

    }

}

?>

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

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

    <title>Document</title>

</head>

<body>

    <form action="" method="POST" enctype="multipart/form-data">

        <input type="file" name="image">

        <button type="submit" name="submit">Upload</button>

    </form>

    <div class="images">

    <?php

       $res=mysqli\_query($db,"select \* from imagestorage");

       while($row = mysqli\_fetch\_assoc($res)){

        ?>

     <img src="uploads/<?php echo $row['Image']?>" width="200px"/>

     <?php } ?>

       </div>

</body>

</html>

15. Write a program in PHP to read and write file using form control.

<!DOCTYPE html>

<html>

<head>

    <title>File Reader/Writer</title>

</head>

<body>

    <h2>File Reader/Writer</h2>

    <hr>

    <form action="" method="post">

        <label for="readFilename">Enter File Name to Read:</label>

        <input type="text" id="readFilename" name="readFilename" >

        <br><br>

        <input type="submit" value="Read File">

    <br><br>

    </form>

    <form action="" method="POST">

    <label for="writeFilename">Enter File Name to write:</label>

        <input type="text" id="writeFilename" name="writeFilename"><br><br>

        <label for="writeFilename">Enter File Content:</label><br>

        <textarea name="content" id="" cols="30" rows="10"></textarea>

        <br><br>

        <input type="submit" value="write File"> <br><br>

    </form>

    <?php

function writeFile($filename, $content) {

    $file = fopen($filename, "a") or die("Unable to open file!");

    fwrite($file, $content);

    fclose($file);

}

function readFileContent($filename) {

    $file = fopen($filename, "r") or die("Unable to open file!");

    $content = fread($file, filesize($filename));

    fclose($file);

    echo $content;

}

if($\_SERVER["REQUEST\_METHOD"]=="POST"){

    if(isset($\_POST['readFilename'])){

        $filename=$\_POST['readFilename'];

        readFileContent($filename);

    }

    if(isset($\_POST['writeFilename'])){

        $filename=$\_POST['writeFilename'];

        $content=$\_POST['content'];

        writeFile($filename,$content);

        echo "Content has been written to '$filename' ";

    }

}

?>

</body>

</html>

16. Write a program in PHP to add, update and delete using student database.

<?php

// Database connection details

$servername = "localhost";

$username = "root";

$password = "";

$dbname = "studentdb";

// Create connection

$conn = new mysqli($servername, $username, $password, $dbname);

// Check connection

if ($conn->connect\_error) {

    die("Connection failed: " . $conn->connect\_error);

}

// Function to add a student

function addStudent($conn, $name, $age, $grade) {

    $sql = "INSERT INTO studentdbs (name, age, grade) VALUES ('$name', '$age', '$grade')";

    if ($conn->query($sql) === TRUE) {

        echo "New student added successfully<br>";

    } else {

        echo "Error: " . $sql . "<br>" . $conn->error;

    }

}

// Function to update a student

function updateStudent($conn, $id, $name, $age, $grade) {

    $sql = "UPDATE studentdbs SET name='$name', age='$age', grade='$grade' WHERE Sno=$id";

    if ($conn->query($sql) === TRUE) {

        echo "Student updated successfully<br>";

    } else {

        echo "Error updating record: " . $conn->error;

    }

}

// Function to delete a student

function deleteStudent($conn, $id) {

    $sql = "DELETE FROM studentdbs WHERE Sno=$id";

    if ($conn->query($sql) === TRUE) {

        echo "Student deleted successfully<br>";

    } else {

        echo "Error deleting record: " . $conn->error;

    }

}

addStudent($conn, 'Alice', 20, 'A');

updateStudent($conn, 1, 'Alice Smith', 21, 'B');

deleteStudent($conn, 2);

$conn->close();

?>

17. Write a program in PHP to Validate Input

<?php

$errors = [];

if ($\_SERVER["REQUEST\_METHOD"] == "POST") {

    $username=$\_POST['name'];

    $age=$\_POST['age'];

    if (empty($username) || !preg\_match("/^[a-zA-Z ]\*$/", $username) || empty($age) || !preg\_match("/^[0-9]\*$/", $age)) {

        echo "Enter Valid Input";

    }

    else{

        echo "<h2>Input is valid:</h2>";

        echo "Username: $username<br>";

        echo "AGE: $age";

        echo "<br><br>";

    }

}

?>

<html>

    <head>

        <title>Validate  input</title>

    </head>

    <body>

        <form action="" method="POST">

            <label for="name">USERNAME: <input type="text" name="name" id=""></label><br><br>

            <label for="name">AGE: <input type="number" name="age" id=""></label><br><br>

            <input type="submit" value="Validate" name="submit">

        </form>

    </body>

</html>

18. Write a program in PHP for setting and retrieving a cookie

<?php

$cookie\_name = "user";

$cookie\_value = "John Doe";

$cookie\_expiry = time() + (86400 \* 1);

setcookie($cookie\_name, $cookie\_value, $cookie\_expiry, "/");

if(isset($\_COOKIE[$cookie\_name])) {

    echo "Cookie name '" . $cookie\_name . "' is set!<br>";

    echo "Value is: " . $\_COOKIE[$cookie\_name];

} else {

    echo "Cookie named '" . $cookie\_name . "' is not set!";

}

?>

19. Write a PHP program to Create a simple webpage of a college.

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <title>Christ Academy Institute for Advanced Studies</title>

    <style>

       body {

            font-family: Arial, sans-serif;

            margin: 20px;

        }

        header {

            background-color: #f2f2f2;

            padding: 10px;

            text-align: center;

        }

        nav {

            display: flex;

            justify-content: space-around;

            background-color: #333;

            color: white;

            padding: 10px;

        }

        nav a {

            color: white;

            text-decoration: none;

        }

        section {

            margin-top: 20px;

        }

        footer {

            background-color: #f2f2f2;

            padding: 10px;

            text-align: center;

            position: absolute;

            bottom: 0;

            width: 100%;

        }

    </style>

</head>

<body>

    <header>

        <h1>Welcome to Christ Academy Institute for Advanced Studies</h1>

    </header>

    <nav>

        <a href="#">Home</a>

        <a href="#">Courses</a>

        <a href="#">Admissions</a>

        <a href="#">Contact</a>

    </nav>

    <section>

        <h2>About Us</h2>

        <p>Welcome to Christ Academy Institute for Advanced Studies. We are dedicated to providing advanced education...</p>

    </section>

    <section>

        <h2>Our Courses</h2>

        <h3>Undergraduate (UG) Courses</h3>

        <ul>

            <?php

            $ugCourses = [

                "Bachelor of Computer Applications (BCA)",

                "Bachelor of Business Administration (BBA)",

                "Bachelor of Science (BSc) in Information Technology"

            ];

            foreach ($ugCourses as $course) {

                echo "<li>$course</li>";

            }

            ?>

        </ul>

        <h3>Postgraduate (PG) Courses</h3>

        <ul>

            <?php

            $pgCourses = [

                "Master of Computer Applications (MCA)",

                "Master of Business Administration (MBA)",

                "Master of Science (MSc) in Computer Science"

            ];

            foreach ($pgCourses as $course) {

                echo "<li>$course</li>";

            }

            ?>

        </ul>

    </section>

    <footer>

        <p>&copy; <?php echo date("Y"); ?> Christ Academy Institute for Advanced Studies. All Rights Reserved.</p>

    </footer>

</body>

</html>

20. Write a program in PHP for exception handling for i) divide by zero ii) checking date format.

<!DOCTYPE html>

<html>

<head>

    <title>User Input</title>

</head>

<body>

    <form action="" method="post" name="divide">

        <label for="numerator">Numerator:</label>

        <input type="text" name="numerator" id="numerator" placeholder="10"/><br><br>

        <label for="denominator">Denominator:</label>

        <input type="text" name="denominator" id="denominator" placeholder="0"/><br><br>

        <label for="date">Enter date</label>

        <input type="text" name="date" id="date" placeholder="Y-m-d"><br><br>

        <input type="submit" value="Check" /><br><br>

    </form>

    <?php

    function divide($numerator, $denominator) {

        return $denominator == 0 ? "Division by zero error" : $numerator / $denominator;

    }

    function checkDateFormat($dateString) {

        return DateTime::createFromFormat('Y-m-d', $dateString) ? "Entered Date $dateString Is In Correct Format" : "Invalid date format. Expected format: YYYY-MM-DD";

    }

    if ($\_SERVER["REQUEST\_METHOD"] == "POST") {

        $numerator = $\_POST['numerator'];

        $denominator = $\_POST['denominator'];

        $dateString = $\_POST['date'];

        echo "Result Of Division: " . divide($numerator, $denominator) . "<br><br>";

        echo checkDateFormat($dateString) . "<br><br>";

    }

    ?>

</body>

</html>