**1.Develop and demonstrate a HTML document that illustrates a) the use of Formatting Text. b) Headings tags (H1, H2, H3, H4, H5, H6) c) Font Details (Font Size, Style, Type, Color) d) Setting Color (BG Color)**

<!DOCTYPE html>

<html>

<head>

<title>Formatting Text and Headings</title>

<style>

body {

font-family: Arial, sans-serif;

}

h1 {

font-size: 32px;

font-style: italic;

color: #3366cc;

}

h2 {

font-size: 28px;

font-weight: bold;

color: #ff9900;

}

h3 {

font-size: 24px;

color: #009933;

}

h4 {

font-size: 20px;

color: #9900cc;

}

h5 {

font-size: 16px;

color: #ff0000;

}

h6 {

font-size: 14px;

color: #999999;

}

p {

font-size: 14px;

line-height: 1.5;

color: #333333;

}

.bg-blue {

background-color: #66ccff;

}

.bg-yellow {

background-color: #ffff66;

}

.bg-green {

background-color: #99ff99;

}

.bg-purple {

background-color: #cc99ff;

}

.bg-red {

background-color: #ff9999;

}

.bg-gray {

background-color: #cccccc;

}

</style>

</head>

<body>

<h1>Heading 1</h1>

<h2>Heading 2</h2>

<h3>Heading 3</h3>

<h4>Heading 4</h4>

<h5>Heading 5</h5>

<h6>Heading 6</h6>

<p>This is a paragraph of text with <strong>bold</strong> and <em>italic</em> formatting.</p>

<h2 class="bg-blue">Background Color Example</h2>

<p>This paragraph has a blue background color.</p>

<h3 class="bg-yellow">Background Color Example</h3>

<p>This paragraph has a yellow background color.</p>

<h4 class="bg-green">Background Color Example</h4>

<p>This paragraph has a green background color.</p>

<h5 class="bg-purple">Background Color Example</h5>

<p>This paragraph has a purple background color.</p>

<h6 class="bg-red">Background Color Example</h6>

<p>This paragraph has a red background color.</p>

<p class="bg-gray">This paragraph has a gray background color.</p>

</body>

</html>

**2.Develop and demonstrate a HTML document that illustrates a) Unordered List (UL) b) Ordered List (OL) and Definition list (DL) c) Table Alignment (Cell Spacing, Cell Padding, Height, Width, Border, Rowspan, colspan) d) Setting Different Table Attributes (Color, Image)**

<!DOCTYPE html>

<html>

<head>

<title>Lists and Tables</title>

<style>

table {

width: 100%;

border-collapse: collapse;

}

table, th, td {

border: 1px solid black;

padding: 5px;

}

th {

background-color: #dddddd;

}

.red {

color: #ff0000;

}

.table-bg {

background-image: url('table-background.jpg');

background-repeat: no-repeat;

background-size: cover;

}

</style>

</head>

<body>

<h2>Unordered List (UL)</h2>

<ul>

<li>Item 1</li>

<li>Item 2</li>

<li>Item 3</li>

</ul>

<h2>Ordered List (OL)</h2>

<ol>

<li>Item 1</li>

<li>Item 2</li>

<li>Item 3</li>

</ol>

<h2>Definition List (DL)</h2>

<dl>

<dt>Term 1</dt>

<dd>Definition 1</dd>

<dt>Term 2</dt>

<dd>Definition 2</dd>

<dt>Term 3</dt>

<dd>Definition 3</dd>

</dl>

<h2>Table Alignment</h2>

<table cellspacing="10" cellpadding="10">

<tr>

<th>Header 1</th>

<th>Header 2</th>

<th>Header 3</th>

</tr>

<tr>

<td rowspan="2">Cell 1</td>

<td colspan="2">Cell 2</td>

</tr>

<tr>

<td>Cell 3</td>

<td>Cell 4</td>

</tr>

<tr>

<td height="50">Cell 5</td>

<td width="100">Cell 6</td>

<td>Cell 7</td>

</tr>

</table>

<h2>Table with Different Attributes</h2>

<table class="table-bg">

<tr>

<th>Header 1</th>

<th>Header 2</th>

</tr>

<tr>

<td class="red">Cell 1</td>

<td>Cell 2</td>

</tr>

<tr>

<td>Cell 3</td>

<td>Cell 4</td>

</tr>

</table>

</body>

</html>

**3.Create Style sheet to set formatting for text tags and embed that style sheet on web pages created for your site.**

**Prog23.html**

<!DOCTYPE html>

<html>

<head>

<title>My Website</title>

<link rel="stylesheet" href="prog23.css">

</head>

<body>

<h1>Welcome to My Website</h1>

<p>This is a paragraph of text. It will inherit the styles defined in the style sheet.</p>

<h2>Section Heading</h2>

<p>This is another paragraph. Links <a href="#">like this</a> will have a different color and underline on hover.</p>

</body>

</html>

**Prog23.css:**

/\* Formatting for text tags \*/

body {

font-family: Arial, sans-serif;

font-size: 16px;

color: #333333;

}

h1 {

font-size: 32px;

font-weight: bold;

color: #ff0000;

}

h2 {

font-size: 28px;

font-weight: bold;

color: #3366cc;

}

p {

line-height: 1.5;

}

a {

color: #9900cc;

text-decoration: none;

}

a:hover {

text-decoration: underline;

}

**4.Design a timetable and display it in tabular format using html.**

<!DOCTYPE html>

<html>

<head>

<title>Timetable</title>

<style>

table {

width: 60%;

border-collapse: collapse;

}

th, td {

border: 1px solid #dddddd;

padding: 8px;

text-align: left;

}

th {

background-color: #f2f2f2;

}

tr:nth-child(even) {

background-color: #f9f9f9;

}

</style>

</head>

<body>

<h2>Timetable</h2>

<table>

<tr>

<th>Time</th>

<th>Monday</th>

<th>Tuesday</th>

<th>Wednesday</th>

<th>Thursday</th>

<th>Friday</th>

</tr>

<tr>

<td>09:00 - 10:00</td>

<td>Math</td>

<td>English</td>

<td>Science</td>

<td>History</td>

<td>Art</td>

</tr>

<tr>

<td>10:00 - 11:00</td>

<td>Physics</td>

<td>Math</td>

<td>English</td>

<td>Science</td>

<td>History</td>

</tr>

<tr>

<td>11:00 - 12:00</td>

<td>History</td>

<td>Art</td>

<td>Physics</td>

<td>Math</td>

<td>English</td>

</tr>

<!-- Add more rows for each time slot -->

</table>

</body>

</html>

**5. Design signup form to validate username, password, and phone numbers etc. using Java script**

<!DOCTYPE html>

<html>

<head>

<title>Signup Form</title>

<script>

function validateForm() {

// Get the values entered by the user

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

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

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

// Regular expressions for validation

var usernameRegex = /^[a-zA-Z0-9\_]{4,16}$/;

var passwordRegex = /^(?=.\*\d)(?=.\*[a-z])(?=.\*[A-Z])[0-9a-zA-Z]{8,}$/;

var phoneNumberRegex = /^\d{10}$/;

// Perform the validation

if (!usernameRegex.test(username)) {

alert('Please enter a valid username (4-16 characters, alphanumeric only).');

return false;

}

if (!passwordRegex.test(password)) {

alert('Please enter a valid password (at least 8 characters, with at least one digit, one lowercase letter, and one uppercase letter).');

return false;

}

if (!phoneNumberRegex.test(phoneNumber)) {

alert('Please enter a valid phone number (10 digits only).');

return false;

}

// If all validations pass, the form can be submitted

alert('Welcome, ' + username + '!');

return true;

}

</script>

</head>

<body>

<h2>Signup Form</h2>

<form onsubmit="return validateForm()">

<label for="username">Username:</label>

<input type="text" id="username" name="username" required>

<br>

<label for="password">Password:</label>

<input type="password" id="password" name="password" required>

<br>

<label for="phoneNumber">Phone Number:</label>

<input type="text" id="phoneNumber" name="phoneNumber" required>

<br>

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

</form>

</body>

</html>

**6.Write a JavaScript to design a simple calculator to perform the following operations: sum, product, difference and quotient.**

<!DOCTYPE html>

<html>

<head>

<title>Simple Calculator</title>

<script>

function calculate() {

// Get the values entered by the user

var num1 = parseFloat(document.getElementById('num1').value);

var num2 = parseFloat(document.getElementById('num2').value);

// Get the selected operation

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

// Perform the calculation based on the selected operation

var result;

if (operation === 'sum') {

result = num1 + num2;

} else if (operation === 'product') {

result = num1 \* num2;

} else if (operation === 'difference') {

result = num1 - num2;

} else if (operation === 'quotient') {

result = num1 / num2;

}

// Display the result

document.getElementById('result').innerHTML = 'Result: ' + result;

}

</script>

</head>

<body>

<h2>Simple Calculator</h2>

<label for="num1">Number 1:</label>

<input type="number" id="num1" required>

<br> <br>

<label for="num2">Number 2:</label>

<input type="number" id="num2" required>

<br> <br>

<label for="operation">Operation:</label>

<select id="operation">

<option value="sum">Sum</option>

<option value="product">Product</option>

<option value="difference">Difference</option>

<option value="quotient">Quotient</option>

</select>

<br> <br>

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

<h3 id="result"></h3>

</body>

</html>

**7.Develop and demonstrate a HTML5 file that includes JavaScript script that uses functions for the following problems: a. Parameter: A string b. Output: The position in the string of the left-most vowel c. Parameter: A number d. Output: The number with its digits in the reverse order.**

<!DOCTYPE html>

<html>

<head>

<title>JavaScript Functions</title>

<script>

function findLeftMostVowel(str) {

var vowels = ['a', 'e', 'i', 'o', 'u'];

str = str.toLowerCase();

for (var i = 0; i < str.length; i++) {

if (vowels.includes(str[i])) {

return i;

}

}

return -1; // If no vowel found

}

function reverseNumber(num) {

var reversed = 0;

while (num !== 0) {

var digit = num % 10;

reversed = reversed \* 10 + digit;

num = Math.floor(num / 10);

}

return reversed;

}

function calculateVowelPosition() {

var str = prompt('Enter a string:');

var pos = findLeftMostVowel(str);

alert('Left-most vowel position in "' + str + '": ' + pos);

}

function calculateReverseNumber() {

var num = (prompt('Enter a number:'));

var numericRegex = /^[0-9]+$/;

if(numericRegex.test(num)) {

var reversed = reverseNumber(num);

alert('Reverse of ' + num + ': ' + reversed);

}

else

{

alert('Input is not a valid number');

}

} </script>

</head>

<body>

<h2>JavaScript Functions</h2>

<button onclick="calculateVowelPosition()">Find Vowel Position</button>

<button onclick="calculateReverseNumber()">Reverse Number</button>

</body>

</html>

**8.Write an HTML page that contains a selection box with a list of 5 countries. When the user selects a country, its capital should be printed next in the list. Add CSS to customize the properties of the font of the capital (color, bold and font size).**

<!DOCTYPE html>

<html>

<head>

<title>Country Capitals</title>

<style>

.capital {

color: blue;

font-size: 18px;

}

.bold-text {

font-weight: bold;

font-size: 20px;

}

.red-text {

color: red;

}

.large-text {

font-size: 40px;

}

</style>

<script>

function showCapital() {

var selectBox = document.getElementById('countrySelect');

var capitalText = document.getElementById('capitalText');

// Get the selected country and its capital

var selectedCountry = selectBox.options[selectBox.selectedIndex].text;

var capital;

// Assign the corresponding capital based on the selected country

switch (selectedCountry) {

case 'India':

capital = 'Delhi';

break;

case 'USA':

capital = 'Washington, D.C.';

break;

case 'Canada':

capital = 'Ottawa';

break;

case 'Australia':

capital = 'Canberra';

break;

case 'Japan':

capital = 'Tokyo';

break;

default:

capital = '';

}

// Display the capital in the designated area

capitalText.innerHTML = capital;

}

function customizeFont() {

var capitalOutput = document.getElementById("capitalText");

var colorCheckbox = document.getElementById("colorCheckbox");

var boldCheckbox = document.getElementById("boldCheckbox");

var fontSizeCheckbox = document.getElementById("fontSizeCheckbox");

capitalOutput.classList.remove("red-text", "bold-text", "large-text");

if (colorCheckbox.checked) {

capitalOutput.classList.add("red-text");

}

if (boldCheckbox.checked) {

capitalOutput.classList.add("bold-text");

}

if (fontSizeCheckbox.checked) {

capitalOutput.classList.add("large-text");

}

}

</script>

</head>

<body>

<h2>Country Capitals</h2>

<label for="countrySelect">Select a country:</label>

<select id="countrySelect" >

<option value="India">India</option>

<option value="USA">USA</option>

<option value="Canada">Canada</option>

<option value="Australia">Australia</option>

<option value="Japan">Japan</option>

</select>

<input type="submit" onclick="showCapital()">

<div class="form-group">

<label for="colorCheckbox">Color:</label>

<input type="checkbox" id="colorCheckbox" onchange="customizeFont()">

</div>

<div class="form-group">

<label for="boldCheckbox">Bold:</label>

<input type="checkbox" id="boldCheckbox" onchange="customizeFont()">

</div>

<div class="form-group">

<label for="fontSizeCheckbox">Font Size:</label>

<input type="checkbox" id="fontSizeCheckbox" onchange="customizeFont()">

</div>

<h3>Capital: <span id="capitalText" class="capital"></span></h3>

</body>

</html>