GIFT School of Engineering and Applied Sciences

Spring 2024

CS-244 Database Systems-Lab

Lab-1 Manual

Introduction to Basic HTML

v1
6-4-2022

Introduction to Lab:

This lab introduces students the purpose of the using front-end in Database Systems. The lab discusses the basic HTML. The fundamental concepts of CSS are also introduced.

The main topics in this lab includes:

1. HTML Introduction
2. HTML Tags
3. HTML page structure
4. The <!DOCTYPE> Declaration
5. HTML Documents
6. HTML Headings
7. HTML Paragraphs
8. The HTML <pre> element
9. HTML Attributes
10. The href Attribute
11. HTML Lists
12. HTML Tables
13. HTML forms
14. CSS Introduction
15. CSS Types
16. CSS Inline Styling
17. CSS Internal Styling
18. CSS Selector
19. Class as a selector
20. Margin and Padding
21. CSS External Styling
22. Post Lab Assignment

Objective of this Lab:

At the end of this lab student should be able to:

Understand the basic HTML content

Understand how to create a static web page

Understand how to enhance a web page using CSS

1. HTML Introduction

HTML

Html is the heart of web pages.

- HTML stands for **Hyper Text Markup Language**
- HTML elements are the building blocks of HTML pages
- HTML elements are represented by tags

A Simple HTML Document

2. HTML Tags

HTML tags are element names surrounded by angle brackets:

```
<tagname>content goes here...</tagname>
```

- HTML tags normally come **in pairs** like `<p>` and `</p>`
- The first tag in a pair is the **start tag,** the second tag is the **end tag**
- The end tag is written like the start tag, but with a **forward slash** inserted before the tag name

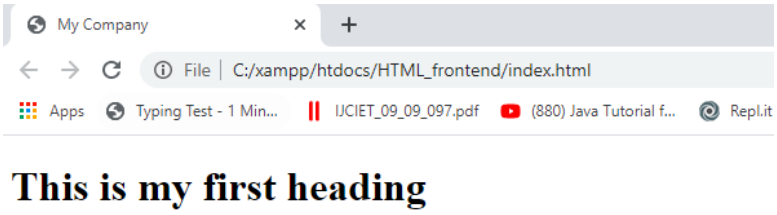
index.html

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>My Company</title>
5  </head>
6  <body>
7  <h1>This is my first heading</h1>
8  </body>
9  </html>
```

Web Browsers

The purpose of a web browser (Chrome, Edge, Firefox, Safari) is to read HTML documents and display them.

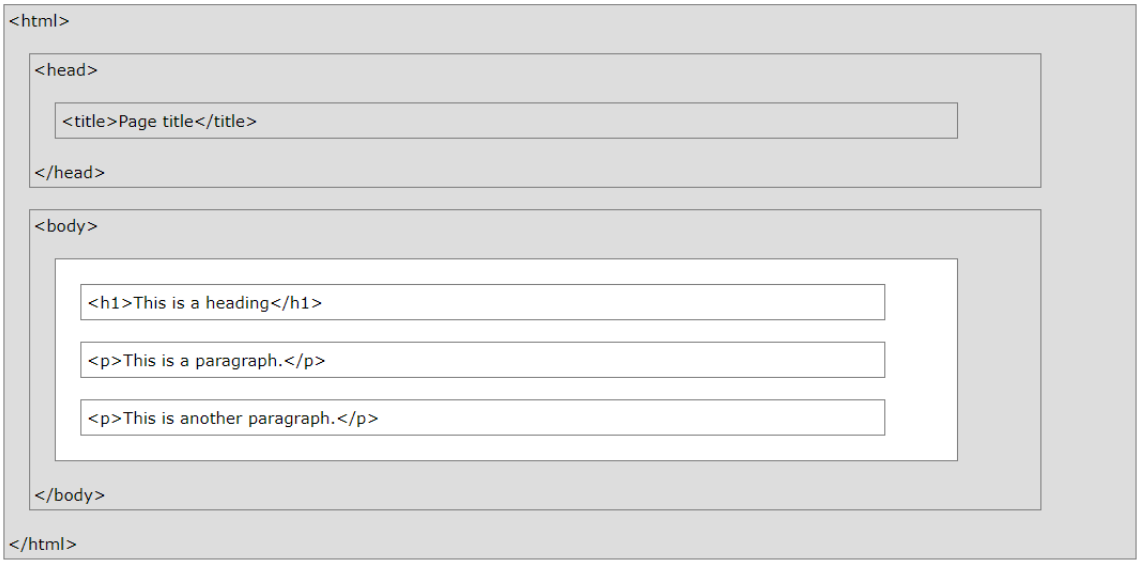
The browser does not display the HTML tags, but uses them to determine how to display the document:



This is my first heading

3. HTML Page Structure

Below is a visualization of an HTML page structure:



4. The <!DOCTYPE> Declaration

The <!DOCTYPE> declaration represents the document type, and helps browsers to display web pages correctly.

It must only appear once, at the top of the page (before any HTML tags).

The <!DOCTYPE> declaration is not case sensitive.

5. HTML Documents

All HTML documents must start with a document type declaration: <!DOCTYPE html>.

The HTML document itself begins with <html> and ends with </html>.

The visible part of the HTML document is between <body> and </body>

6. HTML Headings

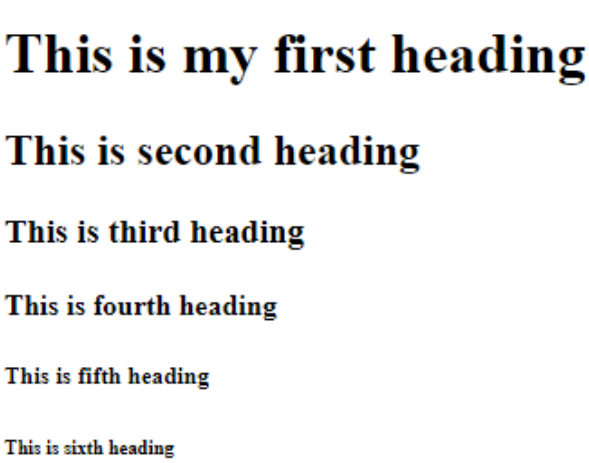
HTML contains 6 headings h1, h2, h3, h4, h5, h6
h1 is biggest heading

h6 is smallest heading

<h1> defines the most important heading. <h6> defines the least important heading:

index.html

```
<!DOCTYPE html>
<html>
<head>
    <title>My Company</title>
</head>
<body>
<h1>This is my first heading</h1>
<h2>This is second heading</h2>
<h3>This is third heading</h3>
<h4>This is fourth heading</h4>
<h5>This is fifth heading</h5>
<h6>This is sixth heading</h6>
</body>
</html>
```



7. HTML Paragraphs

HTML paragraphs are defined with the <p> tag:

index.html

```
<!DOCTYPE html>
<html>
<head>
    <title>My Company</title>
</head>
<body>

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod
tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam,
quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo
consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse
cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non
proident, sunt in culpa qui officia deserunt mollit anim id est laborum.</p>

</body>
</html>
```

8. The HTML <pre> Element

The HTML `<pre>` element defines preformatted text.

The text inside a `<pre>` element is displayed in a fixed-width font (usually Courier), and it preserves both spaces and line breaks:

index.html

```
<!DOCTYPE html>
<html>
<head>
    <title>My Company</title>
</head>
<body>
<pre>
<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod
tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam,
quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo
consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse
cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non
proident, sunt in culpa qui officia deserunt mollit anim id est laborum.</p>
</pre>
</body>
</html>
```

9. HTML Attributes

- All HTML elements can have **attributes**
- Attributes provide **additional information** about an element

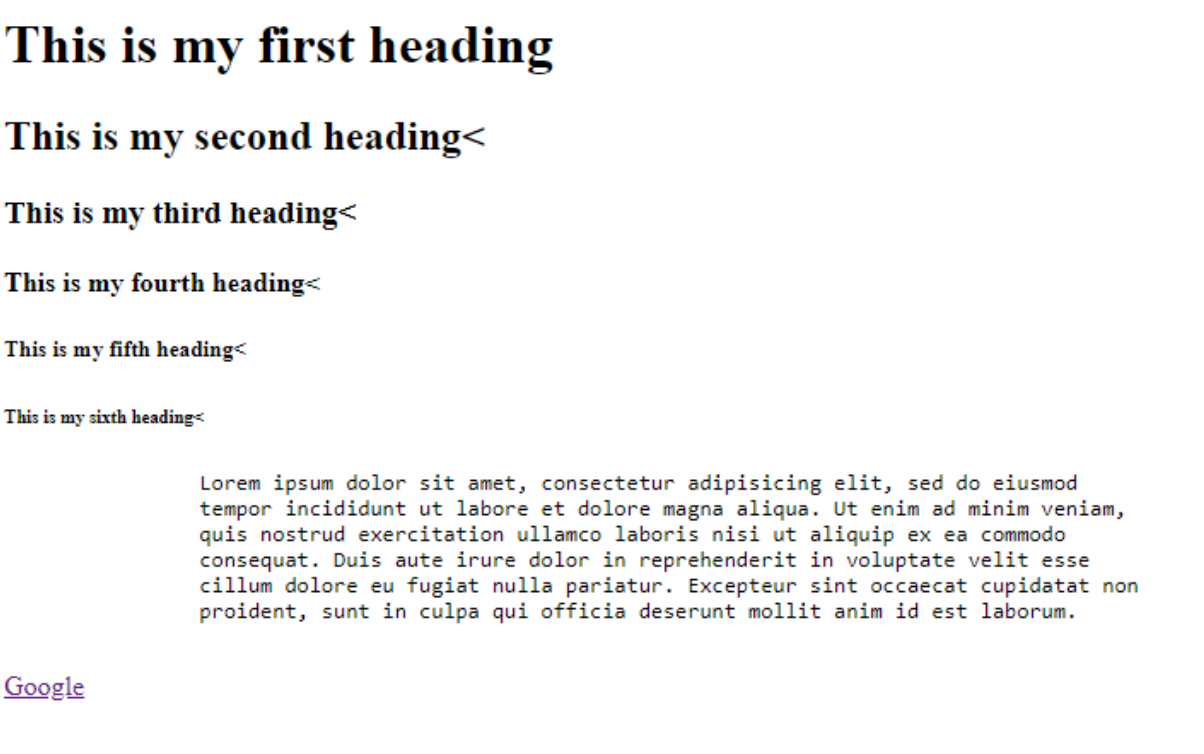
- Attributes are always specified in **the start tag**
- Attributes usually come in name/value pairs like: **name="value"**

10. The href Attribute

HTML links are defined with the `<a>` tag. The link address is specified in the `href` attribute:

index.html

```
<!DOCTYPE html>
<html>
<head>
    <title>My Company</title>
</head>
<body>
    <h1>This is my first heading</h1>
    <h2>This is my second heading<</h2>
    <h3>This is my third heading<</h3>
    <h4>This is my fourth heading<</h4>
    <h5>This is my fifth heading<</h5>
    <h6>This is my sixth heading<</h6>
    <pre>
        Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod
        tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam,
        quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo
        consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse
        cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non
        proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
    </pre>
<a href="https://www.google.com">Google</a>
</body>
</html>
```



11.HTML Tables

Defining an HTML Table

An HTML table is defined with the <table> tag.

Each table row is defined with the <tr> tag. A table header is defined with the <th> tag. By default, table headings are bold and centered. A table data/cell is defined with the <td> tag.

index.html

```
<!DOCTYPE html>
<html>
<head>
    <title>My Company</title>
</head>
<body>
    <h2>Employee details</h2>
    <table border="2px">
        <tr>
            <th>Employee ID</th>
            <th>Employee Name</th>
            <th>Hiredate</th>
        </tr>
        <tr>
            <td>7369</td>
            <td>Smith</td>
            <td>17 December 2015</td>
        </tr>
        <tr>
            <td>7370</td>
            <td>Allen</td>
            <td>2 April 2017</td>
        </tr>
        <tr>
            <td>7371</td>
            <td>Ward</td>
            <td>19 January 2014</td>
        </tr>
    </table>
</body>
</html>
```

Employee details

Employee ID	Employee Name	Hiredate
7369	Smith	17 December 2015
7370	Allen	2 April 2017
7371	Ward	19 January 2014

12.HTML Forms

Form is used to collect user information.
We create HTML form by the following tag:

```
<form>
.
.
</form>
```

Inside of a form there are form elements like Name, Email, Date of birth, Password, Gender, Buttons.
To take above mentioned user information we use form elements inside form tag.

Form Input Elements

<input type=”text”>	One line text input field
<input type=”password”>	Password field
<input type=”submit”>	Submit button
<input type=”reset”>	Reset button
<input type=”email”>	Input field
<input type=”radio”>	Radio button Select only one option
<input type=”checkbox”>	Checkbox field Select multiple options
<input type=”datetime-local”>	Lets the user enter date and time.
<input type=”color”>	Color field
<input type=”date”>	Date field
<input type=”file”>	File input field
<input type=”month”>	Input field for month and year
<input type=”number”>	Number input
<input type=”range”>	Slider for selecting range
<input type=”tel”>	Telephone number
<input type=”url”>	Input URL

Apart from Input element, there are other form elements as well.
Each form element has a **tag, name, value.**
Name is used to identify form elements. If there is no name for a form element then the data of that element is not passed to server.
The user input is **value** of form element. We can also define initial value using attribute **value**.

Task:

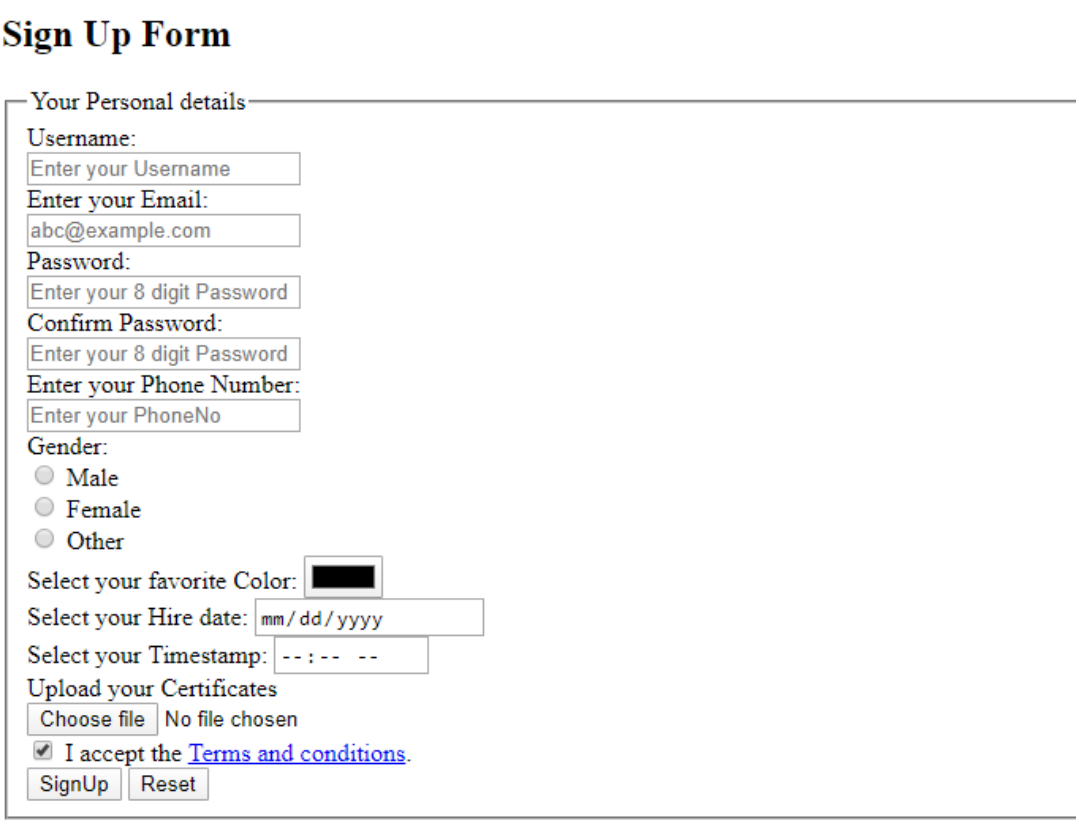
Let’s create a simple form for sign up to a website for Employees.
Sign up form
This form will contain following information:

- Username
- Email
- Password

- Confirm Password
- Phone Number
- Gender
- Favorite Color
- Hire Date
- Timestamp
- Upload your Certificates
- Checkbox
- Submit
- Reset

index.html

```
    <h2>Sign Up Form</h2>
    <fieldset>
        <legend>Your Personal details</legend>
    <form method="POSt">
        <label for="username">Username:</label>
        <br>
        <input type="text" id="username" name="username" placeholder="Enter your Username" required="" maxlength="20">
        <br>
        <label for="email">Enter your Email:</label>
        <br>
        <input type="email" name="email" id="email" placeholder="abc@example.com">
        <br>
        <label for="pass">Password:</label>
        <br>
        <input type="password" id="pass" name="password" placeholder="Enter your 8 digit Password" maxlength="8" required="">
        <br>
        <label for="cpass">Confirm Password:</label>
        <br>
        <input type="password" id="cpass" name="confirmPassword" placeholder="Enter your 8 digit Password" maxlength="8" required="">
        <br>
        <label for="phoneno">Enter your Phone Number:</label>
        <br>
        <input type="tel" name="phoneno" id="phoneno" placeholder="Enter your PhoneNo">
        <br>
        <label>Gender:</label>
        <br>
        <input type="radio" name="gender" id="male" value="male">
        <label for="male">Male</label>
        <br>
        <input type="radio" name="gender" id="female" value="female">
        <label for="female">Female</label>
        <br>
        <input type="radio" name="gender" id="other" value="other">
        <label for="other">Other</label>
        <br>
        <label for="favcolor">Select your favorite Color:</label>
        <input type="color" name="favcolor" id="favcolor">
        <br>
        <label for="date">Select your Hire date:</label>
        <input type="date" name="date" id="date">
        <br>
        <label for="time">Select your Timestamp:</label>
        <input type="time" name="time" id="time">
        <br>
        <label for="myfile">Upload your Certificates</label>
        <br>
        <input type="file" name="myfile" id="myfile">
        <br>
        <input type="checkbox" name="term">
        <label>I accept the <a href="#">Terms and conditions</a>.</label>
        <br>
        <input type="submit" value="SignUp">
        <input type="reset" value="Reset">
    </form>
    </fieldset>
</body>
</html>
```



There are other attributes for form elements also:

autocomplete	Autocomplete for inputs is on or off
autofocus	Autofocus on input when page loads
min and max	Min and max value for input
multiple	Multiple selection is enabled
placeholder	Placeholder value can be specified for input
required	Input is required to submit form
step	Specifies number intervals
size	Size of input field (in characters)
read-only	Input value cannot be changed
disabled	Input field is disabled
checked	Default value for radio
list	Points to data list elements containing predefined options to select.

13.CSS Introduction

What is CSS?

- **CSS** stands for **C**ascading **S**tyle **S**heets
- CSS describes **how HTML elements are to be displayed on screen, paper, or in other media**
- CSS **saves a lot of work**. It can control the layout of multiple web pages all at once
- External stylesheets are stored in **CSS files**

14.CSS Types

We can apply CSS styles in three different ways:

1. **Inline Styling:**
   We write the CSS properties inside HTML tags by using **style** attribute.
2. **Internal Styling:**
   The CSS properties for HTML elements are defined at the top of page by creating separate tag of style <style></style>
3. **External Styling:**
   The CSS properties for HTML elements are defined in separate file with extension .css

15.CSS Selectors:

In CSS, selectors are used to select elements for styling.
You can have following selectors:

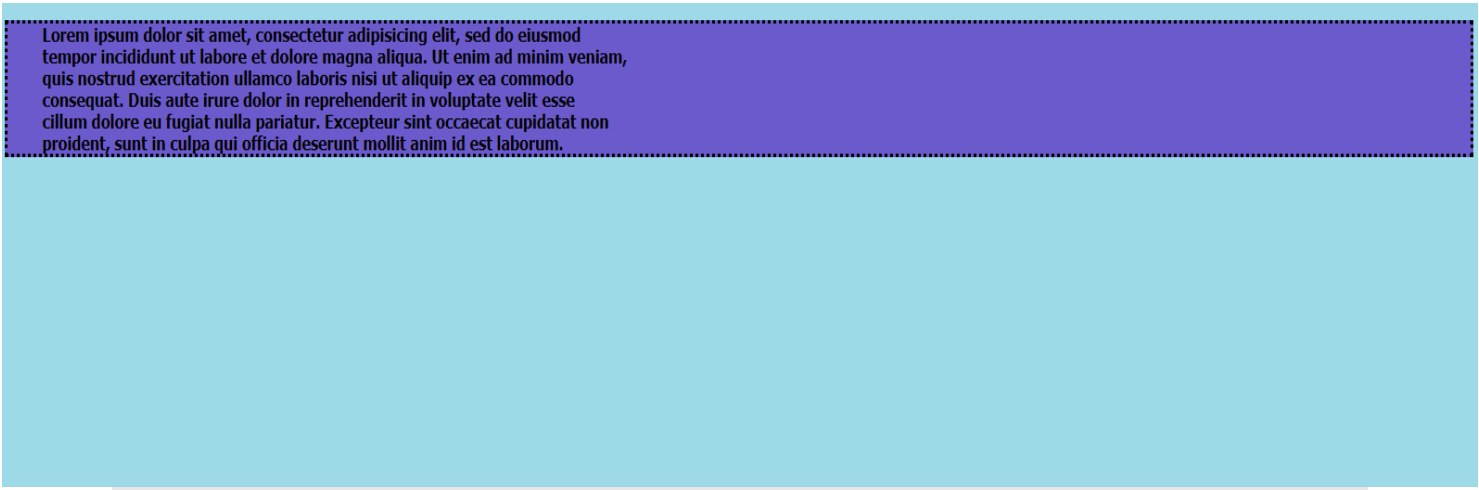
HTML elements e.g. p	selects all paragraph elements in page.
id	selects an element with the specific id.
class	selects group of elements having same class.

Note: *We can assign multiple classes to an HTML element but id is unique. An HTML element will have only one unique id.*
In above example we used HTML element as selector.

ID as Selector:
we can define id for HTML elements using **id** attribute.
1. **Create a new Paragraph and define its id:**
 Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam,quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
2. In CSS to call id we use selector as:

#idname
3. Define style for Paragraph as:

```
    #p2{
            text-align: left;
            font-weight: bold;
            border: dotted;
            background-color: slateblue;
            font-family: tahoma;
}
```



16. Class as Selector:

We define class for HTML elements using **class** attribute.
Many HTML elements can have one class.
Defining CSS styling for a class applies style to all elements having that class.

1. **Create a new Paragraph and give a class name as:**

```
<p class="text">This is Paragraph 3</p>
```

2. **Create a heading and give it same class name:**

```
<h1 class="text">Welcome to my Company</h1>
```

3. **Define CSS style inside style tag for the class:**

Style for a class is defined as:

.classname

```
<style>
.text{
    text-align: center;
    background-color: yellow;
    font-weight: bold;
```

```
}</style>
```

17. Margin and Padding

Margin is space created around HTML element, outside of defined border.
Padding is space created around Element's content inside the defined border.

18. CSS External Styling

In external Styling, you define CSS styles in a separate file with **.css** extension and link that file to **.html** file.

1. Create a New Webpage with .html extension "form.html"

2. Create a Sign Up form as created above:
3. Save the html Webpage.

4. Create a new file with .css extension "style.css"

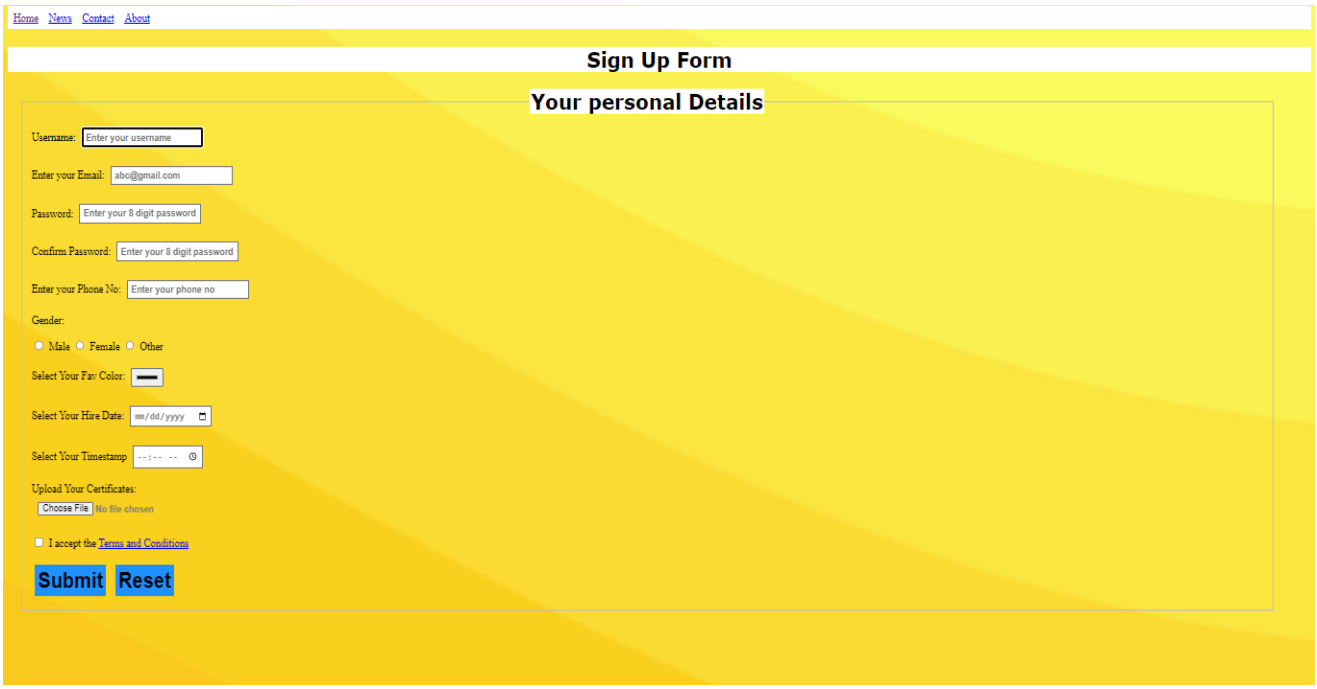
5. Write style for HTML elements in "form.html" as:

```
<body>
    <ul>
        <li><a href="#home" class="navbarlink">Home</a></li>
        <li><a href="#news"  class="navbarlink">News</a></li>
        <li><a href="#contact"  class="navbarlink">Contact</a></li>
        <li><a href="#about" class="navbarlink">About</a></li>
    </ul>
    <h2>Sign Up Form</h2>
    <fieldset>
        <legend>Your personal Details</legend>
        <form class="form">
            <label for="username">Username: </label>
            <input type="text" name="username" id="username" required="" placeholder="Enter your username" maxlength="20" autofocus>
            <br><br>
            <label for="email">Enter your Email:</label>
            <input type="email" name="email" id="email" placeholder="abc@gmail.com" required="" autocomplete="on">
            <br><br>
            <label for="pass">Password: </label>
            <input type="password" name="pass" maxlength="8" id="pass" required="" placeholder="Enter your 8 digit password">
            <br><br>
            <label for="cpass">Confirm Password: </label>
            <input type="password" name="cpass" maxlength="8" id="cpass" required="" placeholder="Enter your 8 digit password">
            <br><br>
            <label for="phone">Enter your Phone No: </label>
            <input type="tel" name="phoneno" id="phone" placeholder="Enter your phone no">
            <br><br>
            <label>Gender: </label><br><br>
            <input type="radio" name="gender" value="male" id="male">
            <label for="male">Male</label>
            <input type="radio" name="gender" value="female" id="female">
            <label for="female">Female</label>
            <input type="radio" name="gender" value="other" id="other">
            <label for="other">Other</label>
            <br><br>
            <label for="favcolor">Select Your Fav Color: </label>
            <input type="color" name="favcolor" id="favcolor">
            <br><br>
            <label for="hdate">Select Your Hire Date: </label>
            <input type="date" name="hdate" id="hdate">
            <br><br>
            <label for="time">Select Your Timestamp</label>
            <input type="time" name="time" id="time">
```

```
            <br><br>
            <label for="doc">Upload Your Certificates: </label> <br>
            <input type="file" name="doc" id="doc">
            <br><br>
            <input type="checkbox" name="terms" id="terms" required>
            <label for="terms">I accept the <a href="#">Terms and Conditions</a> </label>
            <br><br>
            <input type="submit" value="Submit">
            <input type="reset" value="Reset">
        </form>
    </fieldset>
</body>
</html>
```

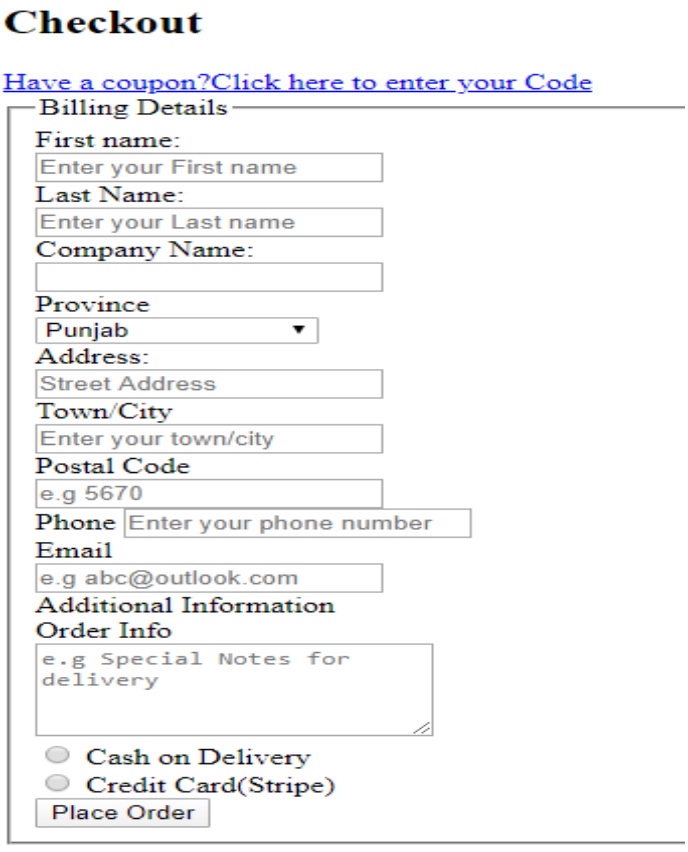
```css
body {

    background-image: url('yellow.png');
    background-size: cover;

/* Note: if the image is smaller or larger than the
screen-size, you can use background-size property.*/
}

h2 {

    text-align: center;
    font-family: Verdana;
    font-size: 30px;
    background-color: white;
}

fieldset {

    padding: 10px;
    margin: 20px;
    width: 95%;

}

legend {

    text-align: center;
    font-family: verdana;
    font-weight: bold;
    font-size: 30px;
    background-color: white;
}

.form {

    padding: 5px;
    text-align: left;
    margin-right: 25px;
}
```

```css
ul {
  list-style-type: none;
  margin: 0;
  padding: 0;
  overflow: hidden;
  background-color: white;
}

li {
  float: left;
}

.navbarlink {
  display: block;
  padding: 8px;

}

input {
    margin: 5px;
    padding: 5px;
    font-weight: bold;

    color: gray;
}


input[type="submit"], input[type="reset"] {

    margin-top: 5px;
    background-color: dodgerblue;
    font-size: 30px;
    color: black;
    border: 1px;
}
```



22. Post Lab Assignment

1. Create a new html file named as checkout.html
2. Create the following checkout form in that html file
3. Now create a separate CSS and style this checkout form using all the attributes discussed above under the heading of CSS.
4. Submit the Checkout.html and style.css files.



The End