



## Chapter 5

# DHTML & CSS

### Learning Objectives

**By the end of this chapter, learner will be able to:**

- Differentiate between HTML & DHTML
- State the purpose of using CSS.
- List different advantages and disadvantages of using CSS.
- Understand the working of all the mentioned properties of CSS.
- Create an interactive webpage using CSS.

### INTRODUCTION

When we open any web page and sends it to the computer requesting it cannot get any more data from the server unless a new request is made. So to overcome this drawback we use Dynamic HTML (DHTML) which is combining HTML and a scripting language that runs on the Client's browser to bring special effects to otherwise static pages.

#### 1. DHTML

DHTML is the combination of HTML and JavaScript. DHTML is the combination of several built-in browser features in fourth generation browsers that enable a web page to be more dynamic.

**DHTML is a combination of technologies used to create dynamic and interactive Web sites.**

- ❖ **HTML** - For creating text and image links and other page elements.
- ❖ **CSS** - Style Sheets for further formatting of text and html, plus other added features such as positioning and layering content.
- ❖ **JavaScript** - The programming language that allows you to accesses and dynamically control the individual properties of both HTML and Style Sheets

Dynamic” is defined as the ability of the browser to alter a web page's look and style after the document has loaded.

DHTML is not a scripting language (like JavaScript), but merely a browser feature- or enhancement- that gives your browser the ability to be dynamic.

DHTML is a collection of features that together, enable your web page to be dynamic. It is the ability of the browser to alter a web page's look and style after the document has loaded.

**With DHTML you can create:**

- ❖ Animation
- ❖ Pop-up menus
- ❖ Inclusion of Web page content from external data sources
- ❖ Elements that can be dragged and dropped within the Web page

**Features of DHTML:**

- ❖ DHTML makes documents dynamic. It allows the designer to control how the HTML displays Web pages' content.
- ❖ Web page reacts and change with the actions of the visitor.
- ❖ DHTML helps to exactly position any element in the window, and change that position after the document has loaded.
- ❖ It can hide and show content as needed.
- ❖ DHTML allows any HTML element (any object on the screen that can be controlled independently using JavaScript) in Internet Explorer to be manipulated at any time, turning plain HTML into dynamic HTML.
- ❖ With DHTML, changes occur entirely on the client-side (on the user's browser).

**Components of DHTML:** Dynamic HTML includes the following components:

- ❖ Conventional HTML
- ❖ Scripts – Small programs designed to manipulate Web pages.
- ❖ Document Object Model (DOM) – The road map through which you can locate any element in an HTML document and use a scripting DHTML 3 language, such as JavaScript, to change the element's properties.
- ❖ Absolute Positioning – The elements on the page are placed in a fixed location, as opposed to relative positioning, in which an element's location is relative to particular elements on the page.
- ❖ Multimedia filters – Multimedia features that create visual effects for text, images, and other objects, without imposing long download times on the user.

## 2. CASCADING STYLE SHEETS (CSS)

In this chapter, we will discuss CSS in detail.

**Cascading Style Sheets (CSS)** is a style sheet language used for describing the look and formatting of a document written in a markup language. It is a way to provide style to HTML. Whereas the HTML is the meaning or content, the style sheet is the *presentation* of that document.

Cascading Style Sheets (CSS) is a simple mechanism for adding style (e.g., fonts, colors, spacing) to Web documents.

**The advantages of using CSS are:**

- ❖ It controls layout of many documents from one single style sheet.
- ❖ It has more precise control of layout.
- ❖ It applies different layouts to different media-types.
- ❖ It has numerous advanced and sophisticated techniques to be applied on web pages.

**The Limitations of CSS are:** CSS is very limited in browser compatibility. When you design a web page and you want it to display exactly as you like it. The problem with CSS is that it displays webpages very differently in the different browsers.

Your webpage looks perfect in Mozilla may look different in Internet Explorer. This is a big problem for your site's success.

### 2.1 Methods of applying CSS to an HTML document

There are three ways you can apply CSS to an HTML document. The First method is “In-Line”, Second method is “Internal” and the Third method i.e. external which is most important.

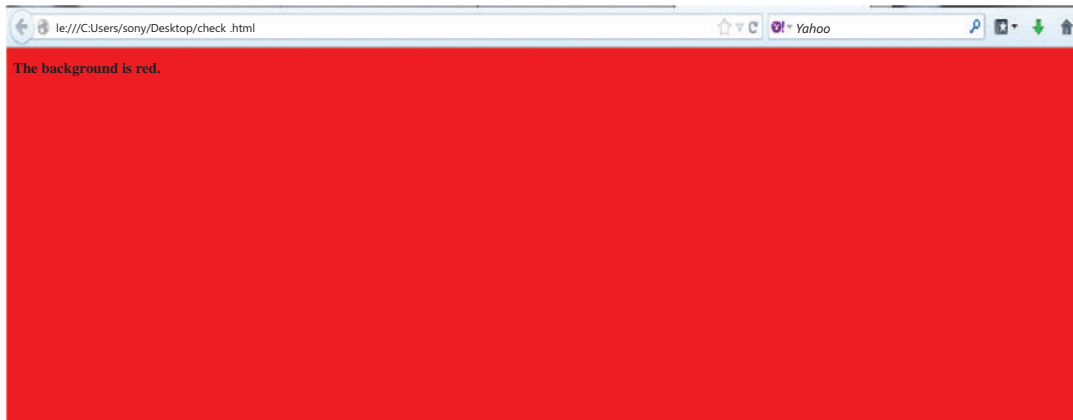
#### Method 1: In-line (the attribute style)

One way to apply CSS to HTML is by using the HTML attribute style.

**Example 1:** To apply the red background color in a webpage, it can be applied in the following manner.

```
<html>
  <head>
    <title>Example</title>
  </head>
  <body style="background-color: #FF0000;">
    <p>The background is red.</p>
  </body>
</html>
```

The above code will produce the following output:

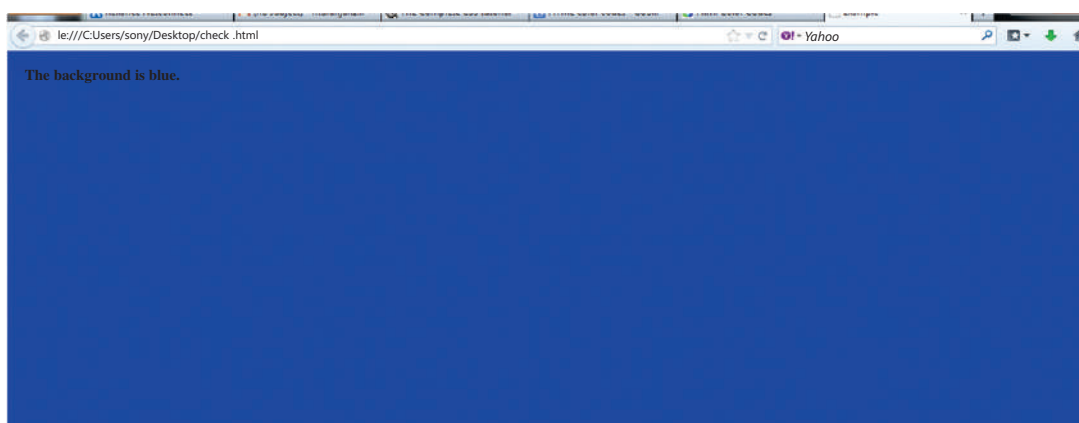


### Method 2: Internal (the tag style)

Another way is to include the CSS codes using the HTML tag `<style>`. For example like this:

```
<html>
<head>
  <title>Example</title>
  <style type="text/css">
    body {background-color: #0000FF ;}
  </style>
</head>
<body>
  <p> The background is Blue.</p>
</body>
</html>
```

The above code will produce the following output:

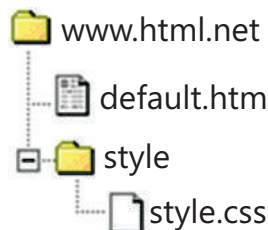


### Method 3: External (link to a style sheet)

The method to link html with style sheet is called external style sheet.

An external style sheet is a text file with the extension **.css**. Like other files, we can place the style sheet on your web server or hard disk.

For example, save the style sheet with the name **style.css** and place it in a folder named **style**.



To create a link from the HTML document (default.htm) to the style sheet (style.css). The following code will be inserted in the header section of the HTML code i.e. between the `<head>` and `</head>` tags. HTML file.

```
<link rel="stylesheet" type="text/css" href="style/style.css" />
```

**The code will be as follows:**

Default.htm

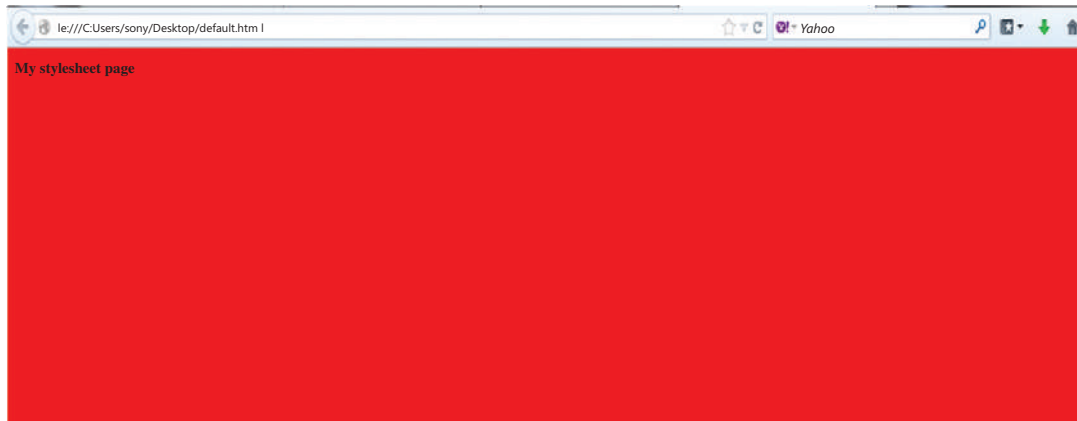
```
<html>
  <head>
    <title>My document</title>
    <link rel="stylesheet" type="text/css" href="style.css" />
  </head>
  <body>
    <h1>My stylesheet Page</h1>
  </body>
</html>
```

**style.css**

```
body {
  background-color: #FF0000;
}
```

This link will display the layout from the CSS file in the browser when displaying the HTML file.

Output of the above code will be as follows:



One CSS file can be used to control the layout of many HTML documents. Using CSS, the change can be made in a few seconds just by changing one code in the central style sheet.

## 3. FONT

### 3.1 Font Properties

- ❖ FONT-FAMILY
- ❖ FONT-STYLE
- ❖ FONT-SIZE
- ❖ FONT-VARIANT
- ❖ FONT-WEIGHT

#### 3.1.1 Font family [font-family]

The property font-family is used to apply prioritized list of fonts in a web page. If the first font of the list is not installed on the computer then the next font of the list will be displayed until a suitable font is found.

**Fonts family is divided into two categories:**

1. Family-name

e.g. be “Arial”, “Times New Roman” or “Tahoma”.

2. Generic family

Generic families can be described as groups of family-names with uniformed appearances.

Example: sans-serif, which is a collection of fonts without “feet”.

**Times New Roman**  
**Garamond**  
**Georgia**

These three font-families belong to the genetic family **serif**. They are characterized by all having “feet”.

**Trebuchet**  
**Arial**  
**Verdana**

These three font-families belong to the genetic family **sans-serif**. They are all characterized by all having “feet”.

Courier  
Courier New  
**Andale Mono**

These three font-families belong to the genetic family **monospace**. They are all characterized by all characters having a fixed width.

An example of a inserting list of fonts in a web page:

```
h1 {font-family: arial, comic sans-serif, “Times New Roman”;}  
h2 {font-family: “Times New Roman”, verdana, serif;}
```

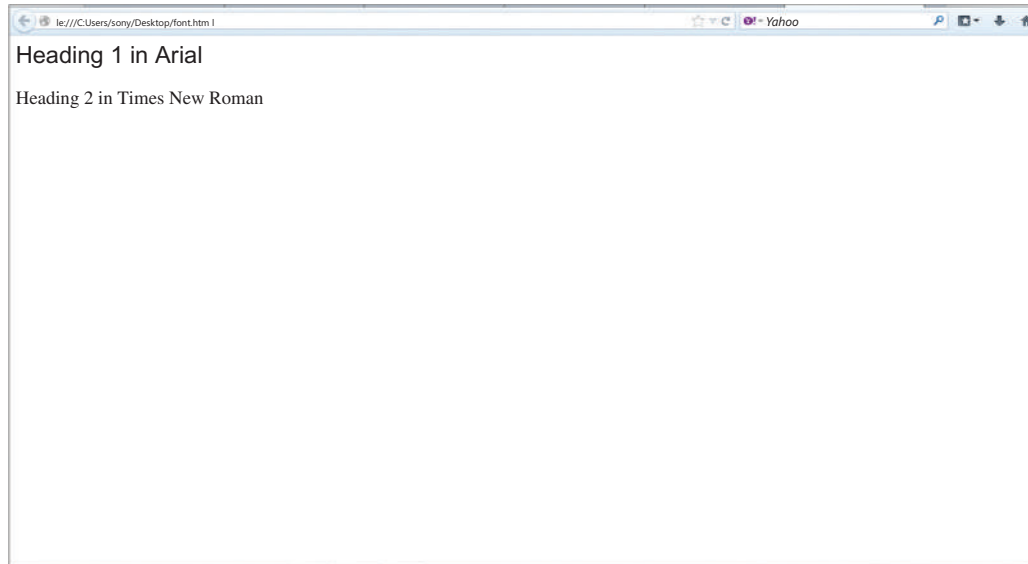
**Code inserted in font.html:**

```
<html >  
<head>  
<title>Example </title>  
  
<link rel=”stylesheet” href=”ex1.css” type=”text/css”/>  
</head>  
<body>  
  <h1>Heading 1 in Arial</h1>  
  
  <h2>Heading 2 in Times New Roman</h2>  
  
  </body>  
</html>
```

**Code inserted in ex1.css:**

```
h1 {font-family: arial, comic sans-serif, "Times New Roman";}
h2 {font-family: "Times New Roman", verdana, serif;}
```

Output produced by the above code:



### 3.1.2 Font style

The property font-style defines the chosen font either in **normal**, **italic** or **oblique**. In the example below, all headlines marked with <h2> will be shown in italics.

```
h1 {font-family: arial, verdana, sans-serif; font-style: oblique;}
h2 {font-family: "Times New Roman", serif; font-style: italic;}
```

**Code inserted in font.html:**

```
<html >
<head>
<title>Example </title>

<link rel="stylesheet" href="ex1.css" type="text/css"/>
</head>
<body>
  <h1>Heading 1 in Arial</h1>

  <h2>Heading 2 in Times New Roman</h2>

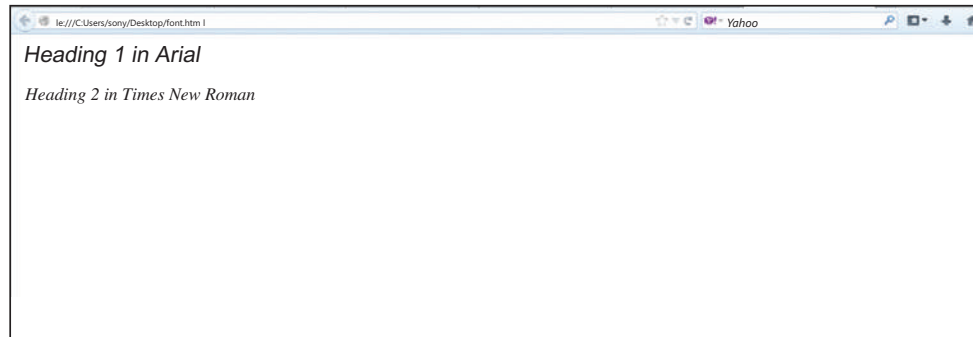
</body>
</html>
```



### Code inserted in ex1.css:

```
h1 {font-family: arial, comic sans-serif, "Times New Roman"; font-style: oblique;}  
h2 {font-family: "Times New Roman", verdana, serif; font-style: italic;}
```

Output produced by the above code:



### 3.1.3 Font variant

This property is used to select **normal** or **small-caps** variants of a font. A **small-caps** font display the smaller sized capitalized letters (upper case) instead of lower case letters.

Sans Book SC	Sans Bold SC	Serif Book SC	Serif Bold SC
<b>ABCABC</b>	<b>ABCABC</b>	<b>ABCABC</b>	<b>ABCABC</b>

If font-variant is set to **small-caps** and no small-caps font is available the browser will most likely show the text in uppercase instead.

```
h1 {font-variant: small-caps;}  
h2 {font-variant: normal;}
```

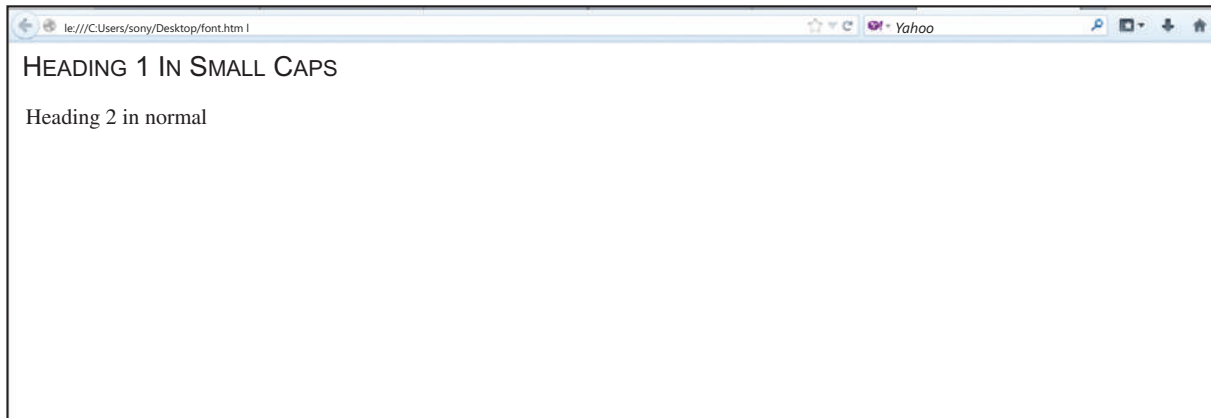
### Code inserted in font.html:

```
<html >  
<head>  
<title>Example </title>  
  
<link rel="stylesheet" href="ex1.css" type="text/css"/>  
</head>  
<body>  
  <h1>Heading 1 in Arial</h1>  
  
  <h2>Heading 2 in Times New Roman</h2>  
</body>  
</html>
```

### Code inserted in ex1.css:

```
h1 {font-family: arial, comic sans-serif, "Times New Roman"; font-variant: small-caps;}  
h2 {font-family: "Times New Roman", verdana, serif; font-style: italic; font-variant: normal;}
```

Output produced by the above code:



### 3.1.4 Font weight

This property describes how bold or “heavy” a font should be presented. A font can either be **normal** or **bold**. Some browsers supports the use of numbers between 100-900(in hundreds) to describe the weight of a font.

```
p {font-family: arial, verdana, sans-serif; font-weight: normal;}  
td {font-family: arial, verdana, sans-serif; font-weight: bold;}
```

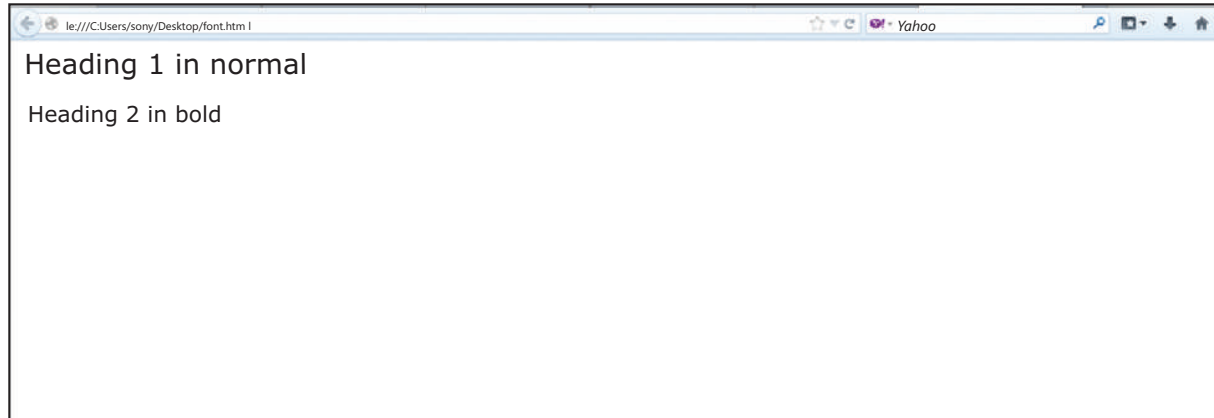
### Code inserted in font.html:

```
<html >  
<head>  
<title>Example </title>  
  
<link rel="stylesheet" href="ex1.css" type="text/css"/>  
</head>  
<body>  
  <h1>Heading 1 in normal</h1>  
  
  <h2>Heading 2 in bold</h2>  
  
</body>  
</html>
```

### Code inserted in ex1.css:

```
{font-family: arial, verdana, sans-serif; font-weight: normal;}  
{font-family: arial, verdana, sans-serif; font-weight: bold;}
```

Output produced by the above code:



### 3.1.5 Font size [font-size]

The font-size property is used to set the size of a font.

There are many different units (e.g. pixels and percentages) to describe font sizes. The following example will illustrate the following effect of font size in a web page.

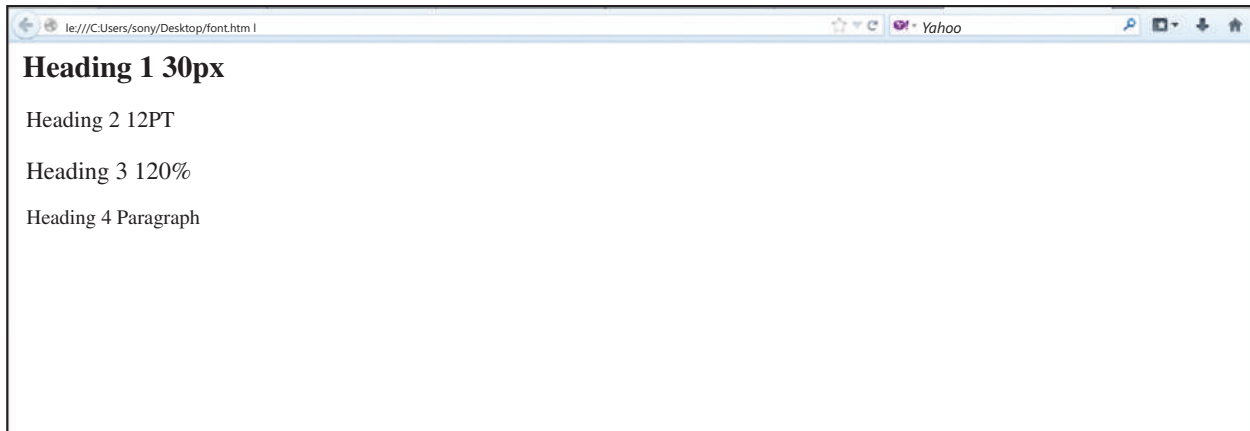
### Code inserted in font.html:

```
<html >  
<head>  
<title>Example</title>  
  
<link rel="stylesheet" href="ex1.css" type="text/css" media="all" />  
</head>  
<body>  
  <h1>Heading 1 30px</h1>  
  <h2>Heading 2 12pt</h2>  
  <h3>Heading 3 120%</h3>  
  <p> Heading 4 paragraph</p>  
  
</body>  
</html>
```

**Code inserted in ex1.css:**

```
h1 {font-size: 30px;}  
h2 {font-size: 12pt;}  
h3 {font-size: 120%;}  
p {font-size: 1em;}
```

Output produced by the above code:



The units '**px**' and '**pt**' make the font size absolute, while '**%**' and '**em**' allow the user to adjust the font size as he/she see fit. Some users suffer from poor vision or a monitor of bad quality. To make your website readable for everybody, you should use adjustable units such as '**%**' or '**em**'.

### 3.1.6 Combining [font] styles:

All the different font properties can be combined in one single property.

For example, to apply different font-properties for <p> tag following code can be used:

```
p {  
    font-style: italic;  
    font-weight: bold;  
    font-size: 30px;  
    font-family: arial, sans-serif;}
```

The order of values for font properties is:

font-style | font-variant | font-weight | font-size | font-family

**Example:**

Display the content using all the font properties of font family.

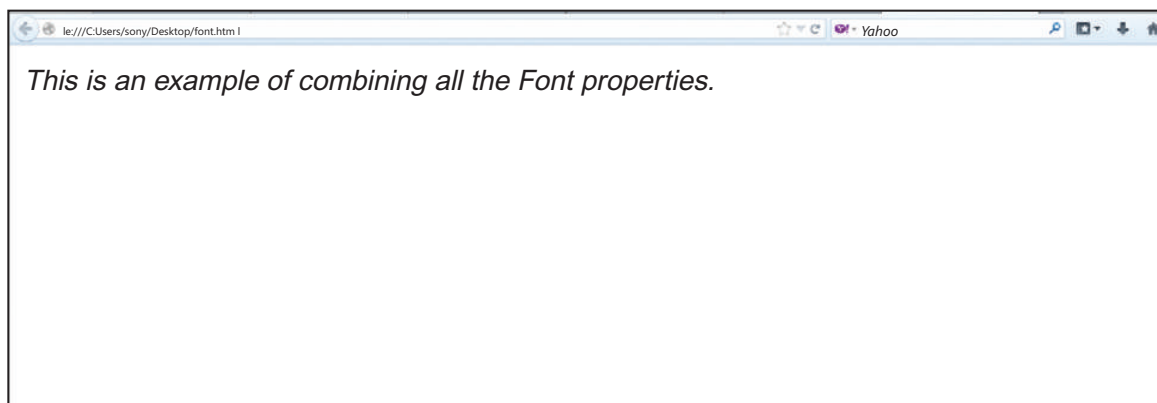
**Code to be inserted in Font.html**

```
<html >
<head>
<title>Example </title>
<link rel="stylesheet" href="ex1.css" type="text/css" media="all" />
</head>
<body>
<p> This an example of combining all the Font properties.</p>
</body>
</html>
```

**Code to be inserted in ex1.css**

```
p {
    font-style: italic;
    font-weight: bold;
    font-size: 30px;
    font-family: arial, sans-serif; }
```

Output produced by the following above code:



## 4. COLOR PROPERTIES

- ❖ TEXT-INDENT
- ❖ TEXT-ALIGN
- ❖ TEXT-DECORATION
- ❖ LETTER-SPACING
- ❖ TEXT-TRANSFORM

## 4.1 Text indentation

The text-indent property allows you to add effects to text paragraphs by applying an indent to the first line of the paragraph.

### Example:

To apply 40px indentation to all text paragraphs marked with <p>, the following code will be used:

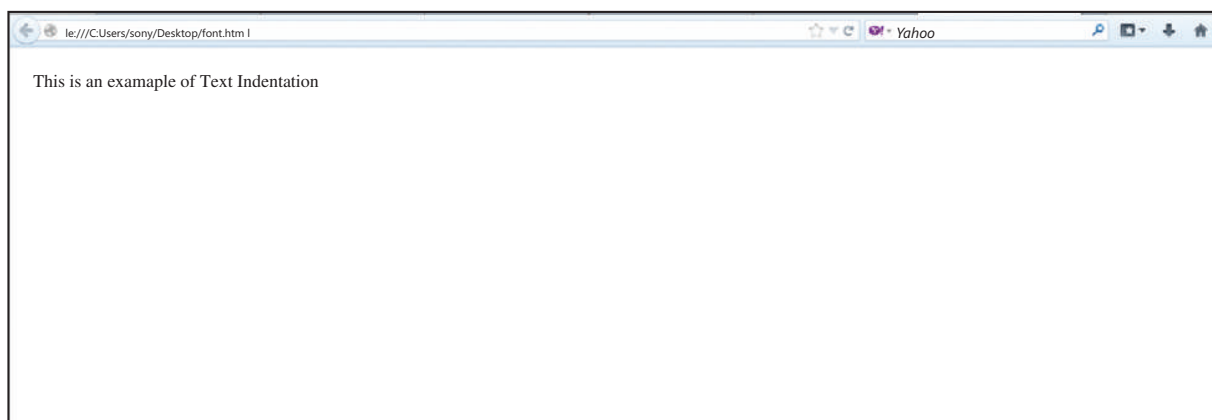
### Code to be inserted in font.html:

```
<html >
<head>
<title>Example</title>
<link rel="stylesheet" href="ex1.css" type="text/css" media="all" />
</head>
<body>
<p> This an example of Text Indentation.</p>
</body>
</html>
```

### Code to be inserted in ex1.css

```
p {
    text-indent: 60px;
}
```

### Output produced by the above following code:



## 4.2 Text alignment

The text-align property gives the same effect as attribute align gives in old versions of HTML. The text can either be aligned to the **left**, to the **right** or **center** of the screen. CSS allows you to apply Justified alignment on text which is not available in HTML. The value **justify** will stretch each line so that both the right and left margins are straight.

### Example:

Display the text in table headings <th> aligned to the right while the table data <td> in the centre of the browser window and normal text in paragraphs to be justified.

### Code to be inserted in font.html

```
<html >
<head>
<title>Example </title>
<link rel="stylesheet" href="ex1.css" type="text/css" media="all" />
</head>
<body>
    <h1>Text alignment</h1>

    <h2>Text alignmen in table</h2>

    <table border="1" width="100%">
    <tr>
    <th>Heading 1</th>
    <th>Heading 2</th>
    </tr>
    <tr>
    <td>Cell 1</td>
    <td>Cell 2</td>
    </tr>
    <tr>
    <td>Cell 3</td>
    <td>Cell 4</td>
    </tr>
    </table>

    <h2>Justified text in paragraphs</h2>
    <p>The Internet is a global system of interconnected computer networks that use the
    standard Internet protocol suite (TCP/IP) to serve several billion users worldwide. It is
```

a network of networks that consists of millions of private, public, academic, business, and government networks, of local to global scope, that are linked by a broad array of electronic, wireless, and optical networking technologies. The Internet carries an extensive range of information resources and services, such as the inter-linked hypertext documents of the World Wide Web (WWW), the infrastructure to support email, and peer-to-peer networks.

</p>

<p>The Internet has no centralized governance in either technological implementation or policies for access and usage; each constituent network sets its own policies. Only the overreaching definitions of the two principal name spaces in the Internet, the Internet Protocol address space and the Domain Name System, are directed by a maintainer organization, the Internet Corporation for Assigned Names and Numbers (ICANN). The technical underpinning and standardization of the core protocols (IPv4 and IPv6) is an activity of the Internet Engineering Task Force (IETF), a non-profit organization of loosely affiliated international participants that anyone may associate with by contributing technical expertise.</p>

</body>

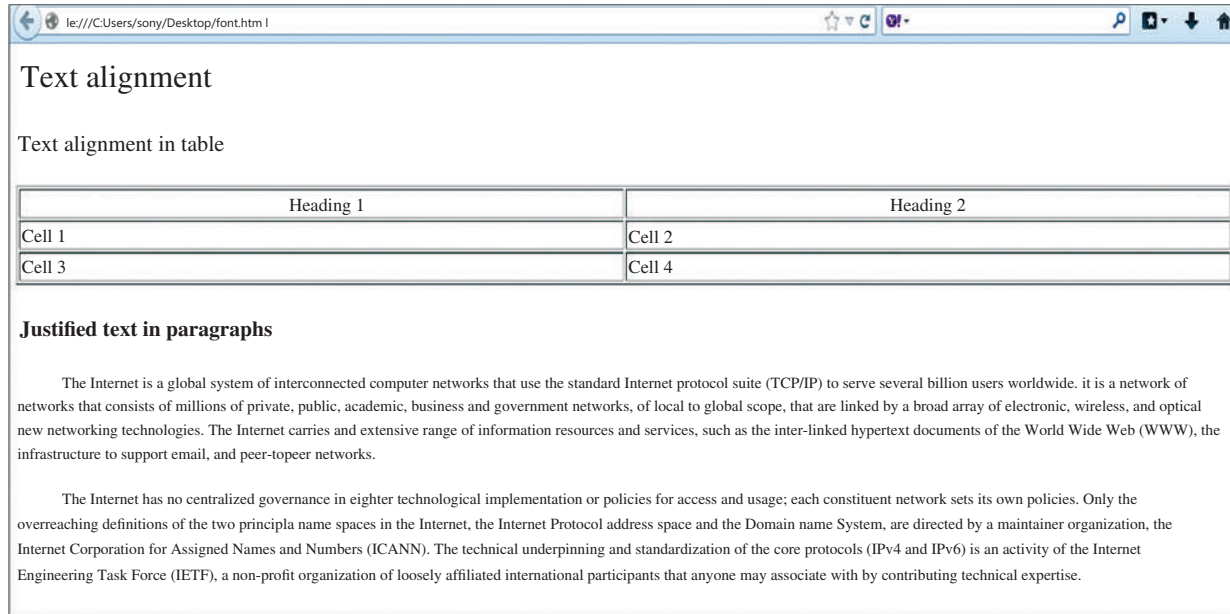
</html>

#### Code to be inserted in ex1.css

```
th {  
    text-align: right;  
}  
  
td {  
    text-align: center;  
}  
  
p {  
    text-align: justify;  
}
```



## Output produced by the following above code:



### 4.3 Text decoration

The text-decoration property makes it possible to add different “decorations” or “effects” to text. For example, you can underline the text, have a line through or above the text, etc.

+In the following example, <h1> are underlined headlines, <h2> are headlines with a line above the text and <h3> are headlines with a line through the text.

#### Code to be inserted in font.html

```
<html >
<head>
<title>Example </title>
<link rel="stylesheet" href="ex1.css" type="text/css" media="all" />
</head>
<body>
  <h1>Text Underline</h1>

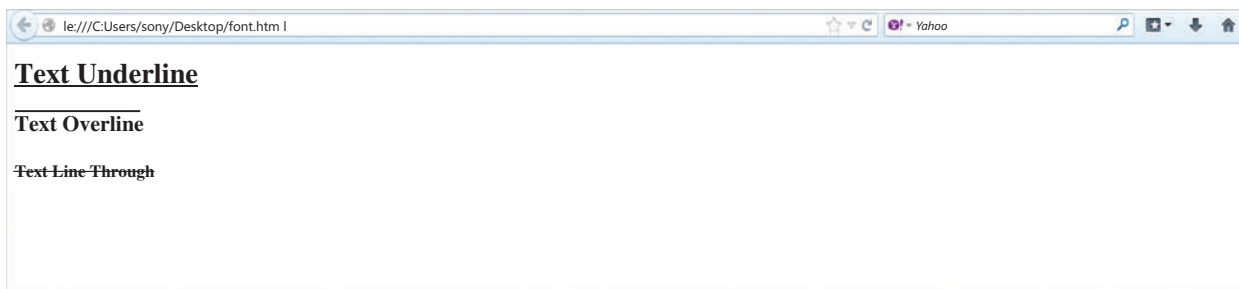
  <h2>Text Overline</h2>
  <h3> Text Line Through</h3>

</body>
</html>
```

### Code to be inserted in ex1.css

```
h1 {  
    text-decoration: underline;  
}  
  
h2 {  
    text-decoration: overline;  
}  
  
h3 {  
    text-decoration: line-through;  
}
```

### Output produced by the above following code:



## 4.4 Letter space

This property is used to give the specified spacing between the text characters. The value of the property is simply the desired width.

### Example:

To give **3px** spacing between the letters in a text paragraph <p> and **6px** between letters in headlines <h1> the following code will be used:

### Code to be inserted in font.html

```
<html >  
<head>  
<title>Example </title>  
<link rel="stylesheet" href="ex1.css" type="text/css" media="all" />  
</head>  
<body>
```

```
<h1>Example showing Letter Spacing</h1>
```

```
<p>The Internet is a global system of interconnected computer networks that use the standard Internet protocol suite (TCP/IP) to serve several billion users worldwide. It is a network of networks that consists of millions of private, public, academic, business, and government networks, of local to global scope, that are linked by a broad array of electronic, wireless, and optical networking technologies. The Internet carries an extensive range of information resources and services, such as the inter-linked hypertext documents of the World Wide Web (WWW), the infrastructure to support email, and peer-to-peer networks.
```

```
</p>
```

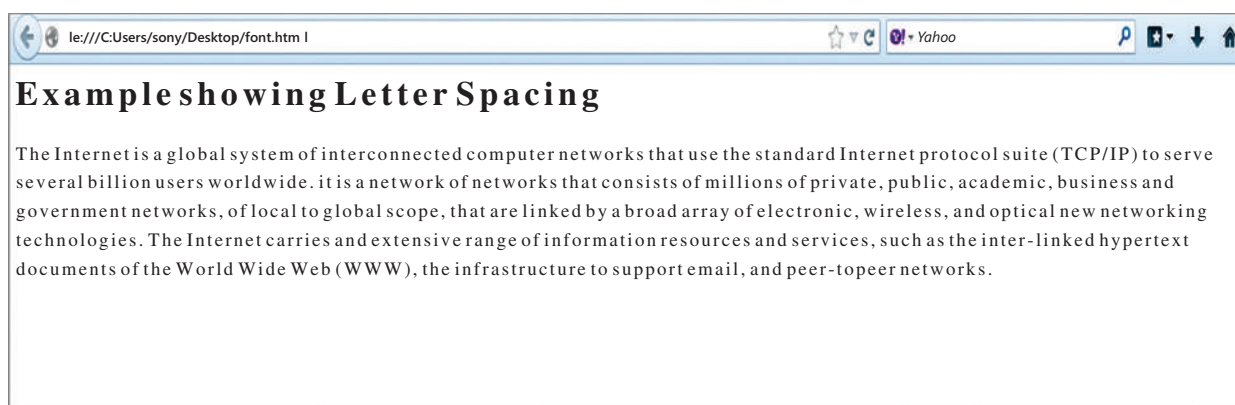
```
</body>
```

```
</html>
```

#### Code to be inserted in ex1.css

```
h1 {  
    letter-spacing: 6px;  
}  
p {  
    letter-spacing: 3px;  
}
```

#### Output produced by the following above code:



## 4.5 Text transformation

The text-transform property controls the capitalization of a text. You can choose to **capitalize**, use **uppercase** or **lowercase** regardless of how the original text is looks in the HTML code.

An example could be the word “headline” which can be presented to the user as “HEADLINE” or “Headline”. There are four possible values for text-transform:

**Capitalize** : Capitalizes the first letter of each word. For example: “information technology” will be “Information Technology”.

**Uppercase** : Converts all letters to uppercase. For example: “ information technology” will be “INFORMATION TECHNOLOGY”.

**Lowercase** : Converts all letters to lowercase. For example: “INFORMATION TECHNOLOGY” will be “ information technology”.

**None** : No transformations - the text is presented as it appears in the HTML code.

**Example:**

Display the heading in Capital letters and list items in uppercase.

**Code to be inserted in font.html**

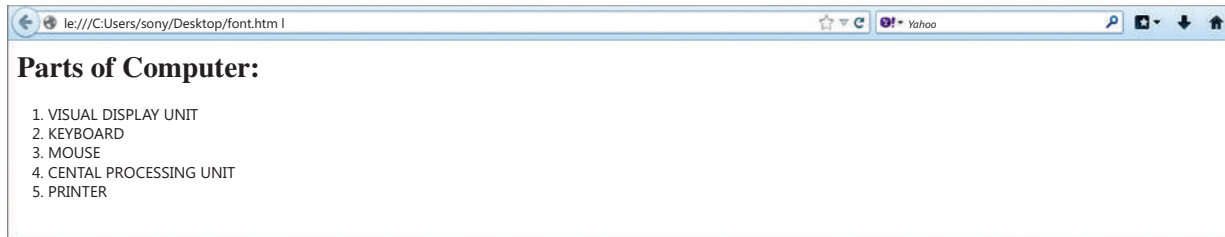
```
<html >
<head>
<title>Example </title>
<link rel="stylesheet" href="ex1.css" type="text/css" media="all" />
</head>
<body>
<h1>Parts of Computer:</h1>
<ol>
<li> Visual Dispaly Unit</li>
<li> Keyboard </li>
<li> Mouse </li>
<li> Central Processing Unit </li>
<li> Printer </li>
</ol>
</body>
</html>
```

**Code to be inserted in ex1.css**

```
h1 {
    text-transform: capitalize;
}
```

```
li {
    text-transform: uppercase;
}
```

**Output produced by the following above code:**



## 5. BACKGROUND PROPERTIES

- ❖ FOREGROUND-COLOR
- ❖ BACKGROUND-COLOR
- ❖ BACKGROUND-IMAGE
- ❖ BACKGROUND-REPEAT

### 5.1 Foreground color: the 'color' property

The color property describes the foreground color of a text to be displayed in browser.

Example, display all headlines in a document to be green colour.

**Code to be inserted in font.html:**

```
<html >
<head>
<title>Example </title>
<link rel="stylesheet" href="ex1.css" type="text/css" media="all" />
</head>
<body>
    <h1>Parts of Computer:</h1>

    <ol>
    <li> Visual Dispaly Unit</li>
    <li> Keyboard </li>
    <li> Mouse </li>
    <li> Central Processing Unit </li>
```

```

    <li> Printer </li>
  </ol>
</body>
</html>

```

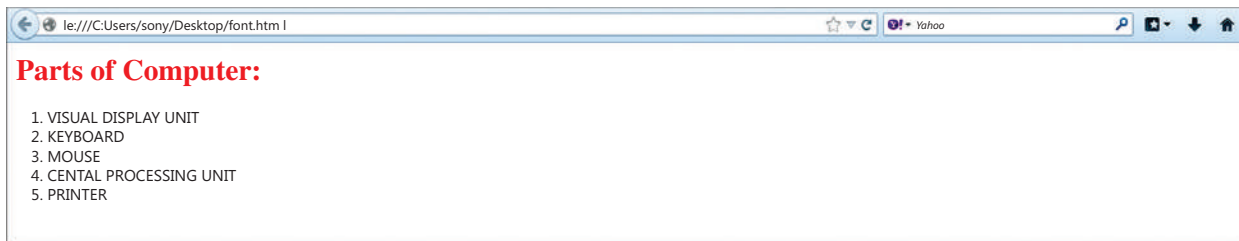
**Code to be inserted in ex1.css:**

```

h1 {
    color: #ff0000;
}

```

**Output produced by the following above code:**



Colors can be entered as hexadecimal values as in the example above (#ff0000), or you can use the names of the colors (“red”) or rgb-values (rgb(255,0,0)).

## 5.2. ‘background-color’ property

The background-color property describes the background color of browser window.

To change the background color of an entire page, the background-color property should be applied to the <body> tag. You can also apply background colors to other elements including headlines and text.

Example, apply different background colors to <body> and <h1> tags.

**Code to be inserted in font.html**

```

<html >
<head>
<title>Example </title>
<link rel="stylesheet" href="ex1.css" type="text/css" media="all" />
</head>
<body>
  <h1> Example displaying foreground and background colour.</h1>
</body>
</html>

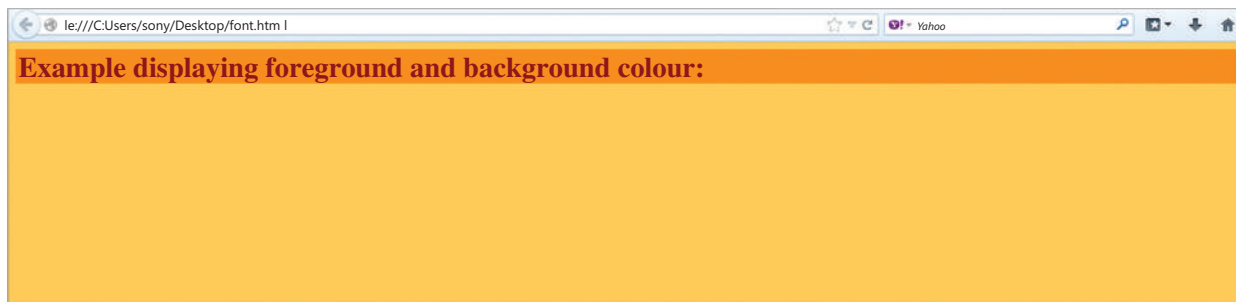
```

#### Code to be inserted in ex1.css

```
body {  
    background-color: #FFCC60;  
}  
  
h1 {  
    color: #990011;  
    background-color: #FC9004;  
}
```

Notice that two properties have been applied to <h1> by dividing them by a semicolon.

#### Code produced by the following above code:



### 5.3 Background images [background-image]

The background-image property is used to insert a background image in a web page.

To insert the image of the butterfly as a background image for a web page, simply apply the background-image property to <body> and specify the location of the image.

#### Code to be inserted in font.html

```
<html >  
<head>  
<title>Example </title>  
<link rel="stylesheet" href="ex1.css" type="text/css" media="all" />  
</head>  
<body>  
    <h1> Inserting Image</h1>  
  
</body>  
</html>
```

### Code to be inserted in ex1.css

```
body {  
    background-color: #FFCC66;  
    background-image: url("earth.gif");  
}  
  
h1 {  
    color: #990000;  
    background-color: #FC9804;  
}
```

### Output to be produced by the above following code:



Image will be inserted by giving the specified the location of the image as **url("earth.gif")**. This means that the image is located in the same folder as the style sheet. You can also refer to images in other folders using **url("../images/earth.gif")** or even on the Internet indicating the full address of the file: **url("http://www.example.net/earth.gif")**.

## 5.4 Repeat background image [background-repeat]

As you have seen in the example above, that by default the image of the earth was repeated both horizontally and vertically to cover the entire screen. The background-repeat property controls this behaviour.

The four different values for background-repeat are as follows:

Value	Description
background-repeat: repeat-x	The image is repeated horizontally
background-repeat: repeat-y	The image is repeated vertically
background-repeat: repeat	The image is repeated both horizontally and vertically
background-repeat: no-repeat	The image is not repeated



For example, to avoid repetition of a background image the following code can be used:

**Code to be inserted in font.html**

```
<html >
<head>
<title>Example </title>
<link rel="stylesheet" href="ex1.css" type="text/css" media="all" />
</head>
<body>
    <h1> Inserting Image</h1>
</body>
</html>
```

**Code to be inserted in ex1.css**

```
body {
    background-color: #FFCC66;
    background-image: url("earth.gif");
    background-repeat: no-repeat;
}

h1 {
    color: #990000;
    background-color: #FC9804;
}
```

**Output to be produced by the following above code:**

