WEB DEVELOPMENT

CHAPTER THREE

CSS

Cascading Style Sheet

Outline

- Introduction to CSS
  - What is CSS?
  - Why CSS?
  - History of CSS
  - CSS syntax
  - Types of Selectors
  - Attaching Style definitions
  - Cascading Rules
  - CSS Comments
  - Common CSS properties

Introduction to CSS

- **What is CSS?**
  - is a language used to specify the formatting of an HTML document
  - have a large set of style attributes that can be used to style HTML elements
- **Why CSS?**
  - Because it helps to separate content of an HTML document from its presentation

Before CSS

```
<body bgcolor="orange" text="blue">
    <h1 font-size="34px">
        This is a heading.
    </h1>
    <div bgcolor="red">
        <p>
            <i><b>This is a paragraph.</b></i>
        </p>
    </div>
</body>
```

example.html

- before we had CSS all style information was encoded directly into HTML documents

After CSS

```html
<head>
    <link rel="stylesheet" type="text\css" href="style.css">
</head>
<body>
    <h1>
        This is a heading.
    </h1>
    <div>
        <p>
            This is a paragraph.
        </p>
    </div>
</body>
```

example.html

```css
body{background-color:orange; color:blue;}
h1{font-size:34px;}
div{background-color:red;}
p{font-weight:bold; font-style:italic;}
```

style.css

Advantages of CSS

- CSS saves time:
  - You can write CSS once and then reuse same sheet in multiple HTML pages.
- Pages load faster :
  - If you are using CSS, you do not need to write HTML tag attributes every time. less code means faster download times.
- Easy maintenance:
  - To make a global change, simply change the style, and all elements in all the web pages will be updated automatically.
- Superior styles to HTML:
  - CSS has a much wider array of attributes than HTML
- Multiple Device Compatibility:
  - Style sheets allow content to be optimized for more than one type of device. By using the same HTML document, different versions of a

    phones or for printing.

CSS History

- Cascading Style Sheets, level 1 (CSS1) was came out of W3C as a recommendation in December 1996. This visual formatting model for all the HTML tags.

- CSS2 was became a W3C recommendation in May 1998 and builds on CSS1. This version adds support for media-downloadable fonts, element positioning and tables.

- CSS3 was became a W3C recommendation in June 1999 and builds on older versions CSS. it has divided into documentations is called as Modules and here each

CSS Syntax

- A CSS rule set consists of a selector and a declaration block:
  - points to the HTML element you want to style.
- Declaration Block
  - contains one or more declarations separated by semicolons

- Property
  - is a type of attribute of HTML tag
- Value
  - Values are assigned to properties.

Types of Selectors

- The Element Selector

```
p{color:green;}
```

- The ID Selector

```
#paraone{color:green;}
```

- The Class Selector

```
.firstclass{color:green;}
```

  - To select
  -

```
p.firstclass{color:red;}
```

Types of Selectors cont'd

- The Universal Selectors

```
*{color:green;}
```

- The Descendant Selectors
  - to select an element only when it lies inside a particular element.

```
ul em{color:green;}
```

- The Child Selectors
  - to select direct child of a particular element

```
body > p{color:green;}
```

Types of Selectors cont'd

- The Attribute Selectors
  - to select HTML elements with particular attributes.

```
input[type]{color:green;}
```

```
input[type="text"]{color:green;}
```

- Grouping Selectors
  - to apply style to many selectors, just separate the selectors with a comma

```
h1,h2,h3,#para,.classone{color:green;}
```

CSS Combinators

- A combinator is something that explains the relationship between the selectors.
- There are four different combinators in CSS3:
  - descendant selector
  - child selector
  - adjacent sibling selector
  - general sibling selector

CSS Combinators

- **Descendant Selector**
  - Used to match all elements that are descendants of a specified element.
  - To select all <p> elements inside elements:
    - div p { background-color: yellow; }
- **Child Selector**
  - Used to select all elements that are the immediate children of a specified element.
  - To select all <p> elements that are immediate children of a element:
    - div > p {background-color: yellow; }

CSS Combinators

- **Adjacent Sibling Selector**
  - Used to select all elements that are the adjacent siblings of a specified element.
  - Sibling elements must have the same parent element, and "adjacent"
  - To select all <p> elements that are placed immediately after elements:
    - div + p { background-color: yellow; }
- **General Sibling Selector**
  - Used to select all elements that are siblings of a specified element.
  - To select all <p> elements that are siblings of elements:
    - div ~ p { background-color: yellow; }

Embedding CSS

- There are three ways of embedding a style definition to an HTML document
  - External style sheet
  - Internal style sheet
  - Inline style

Embedding CSS cont'd

- External style sheet
  - you can change the look of an entire website by changing just one file!
  - Each page must include a reference to the external style sheet file inside the <link> element

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

  - can be written in any text editor
  - the style sheet file must be saved with a .css extension

```
body {
    background-color: lightblue;
}
h1 {
    color: navy;
    margin-left: 20px;
}
```

mystyle.css

Embedding CSS cont'd

- Internal style sheet
  - can be used if one single page has a unique style.
  - Internal styles are defined within the <style> element, inside the head section of an HTML page:

```
<head>
<style>
body {
    background-color: linen;
}
</style>
</head>
```

Embedding CSS cont'd

- Inline Styles
  - can be used to apply a unique style for a single element
  - To use inline styles, add the style attribute to the relevant tag

```
<h1 style="color:blue;margin-left:30px;">
        This is a heading.
</h1>
```

Multiple Style Sheets

- Which style will be used when there is more than one style specified for an HTML element?

- Cascading order
  - Rules of precedence application:
    - Inline styles
    - Internal styles
    - External styles
    - Browser default

CSS Comments

- Comments are ignored by browsers.
- A CSS comment starts with /* and ends with */.

Comments can also span multiple lines:

```
p {
    color: red;
    /* This is a single-line comment */
    text-align: center;
}
/* This is
a multi-line
comment */
```

CSS Color

- Colors in HTML can be specified by the following methods:
  - a color name - like "red"
  - a HEX value - like "#ff0000"
  - an RGB value - like "rgb(255,0,0)"

```
h1 {color: orange;}

p {color: rgb(255,125,0);}

div {color: #b0c4de;}
```

CSS - Measurement Units

Unit	Description	Example
Pt	Defines a measurement in points. A point is defined as 1/72nd of an inch.	body {font-size: 18pt;}
Px	Defines a measurement in screen pixels.	img {width: 25px;}
%	Defines a measurement as a percentage relative to another value, typically an enclosing element.	p {font-size: 16pt; line-height: 125%;}
Cm	Defines a measurement in centimeters.	div {width: 2cm;}
In	Defines a measurement in inches.	p {word-spacing: .15in;}
Mm	Defines a measurement in millimeters.	p {word-spacing: 15mm;}
Em	Relative to the font-size of the element (2em means 2 times the size of the current font)	p {font-size: 7em;}

CSS Background

- CSS background properties are used to define background effects of an element.
  - The background-color property
    - is used to set the background color of an element.
  - The background-image property
    - is used to set the background image of an element.
  - The background-repeat property
    - is used to control the repetition of an image in the background.
  - The background-position property
    - is used to control the position of an image in the background.
  - The background-attachment property
    - is used to control the scrolling of an image in the background.
  - The background property
    - is used as a shorthand to specify a number of other background properties.

CSS Background

Background Properties	Example	Possible Values
background-color	background-color: #b0c4de;	
background-image	background-image: url("/css/images/css.jpg"); background-color: #cccccc;	
background-repeat	background-image: url("/css/images/css.jpg"); background-repeat: repeat;	*repeat* *no-repeat* *repeat-x* *repeat-y*
background-position	background-image: url("/css/images/css.jpg"); background-position:100px 200px;	*right top* *left top* ...
background-attachment	background-image: url('/css/images/css.jpg'); background-attachment: fixed;	*fixed* *scroll*
Shorthand property	background: #ffffff url("img_tree.png") no-repeat right top fixed;	

CSS Font

- You can set following font properties of an element
  - font-family property
    - is used to specify font face of an element
  - font-style property
    - is used to make a font italic or oblique.
  - font-variant property
    - is used to create a small-caps effect.
  - font-weight property
    - is used to increase or decrease how bold or light a font appears.
  - font-size property
    - is used to increase or decrease the size of a font.
  - font property
    - is used as shorthand to specify a number of other font properties.

CSS Font Cont'd

- font-family property
  - In CSS, there are two types of font family names:
    - **generic family** - a group of font families with a similar look (like "Serif" or "Monospace")
    - **font family** - a specific font family (like "Times New Roman" or "Arial")

Generic Family	Font Family	Description
Serif	Times New Roman Georgia	Serif fonts have small lines at the ends on some characters
Sans-serif	Arial Verdana	"Sans" means without - these fonts do not have the lines at the ends of characters
Monospace	Courier New Lucida Console	All monospace characters have the same width

CSS Font Cont'd

Font Properties	Example	Possible Values
font-family	font-family: "Times New Roman", Times, serif;	
font-style	font-style:italic;	*normal* *italic* *oblique*
font-variant	font-variant:small-caps;	*small-caps* *normal*
font-weight	font-weight:bold;	*normal, bold, bolder, lighter, 100, 200, 300, 400, 500, 600, 700, 800, 900*
font-size	font-size:20px;	*xx-small, x-small, small, medium, large, x-large, xx-large, smaller, larger, size in pixels or in %*
Shorthand property	font:italic small-caps bold 15px georgia;	

CSS - Text

- You can set following text properties of an element –
  - color property
    - is used to set the color of a text.
  - direction property
    - is used to set the text direction.
  - letter-spacing property
    - is used to add or subtract space between the letters that make up a word.
  - word-spacing property
    - is used to add or subtract space between the words of a sentence.
  - text-indent property
    - is used to indent the text of a paragraph.
  - text-align property
    - is used to align the text of a document.
  - text-decoration property
    - is used to underline, overline, and strikethrough text.
  - text-transform property
    - is used to capitalize text or convert text to uppercase or lowercase letters.
  - text-shadow property
    - is used to set the text shadow around a text.

CSS Text

Text Properties	Example	Possible Values
`color`	`color:red;`	
`text-align`	`text-align:right;`	*left, right, center, justify*
`text-decoration`	`text-decoration:underline;`	*none, underline, overline, line-through, blink*
`text-transform`	`text-transform:capitalize;`	*none, capitalize, uppercase, lowercase.*
`text-indent`	`text-indent:1cm;`	*% or a number specifying indent space*
`word-spacing`	`word-spacing:5px;`	*normal or a number specifying space*
`letter-spacing`	`letter-spacing:5px;`	*normal or a number specifying space*
`direction`	`direction:rtl;`	*ltr or rtl*
`text-shadow`	`text-shadow:4px 4px 8px blue;`	

CSS - Links

- Links can be styled with any CSS property (e.g. color, font-family, background, etc.).

```
a{color: #000000; text-decoration:none;}
```

- In addition, links can be styled differently depending on what state they are in.
  - The four links states are:
    - a:link - a normal, unvisited link
    - a:visited - a link the user has visited
    - a:hover - a link when the user mouses over it
    - a:active - a link the moment it is clicked

```
a:link {color: #000000}
a:visited {color: #006600}
a:hover {color: #FFCC00}
a:active {color: #FF00CC}
```

- When setting the style for several link states, there are some order rules:
  - a:hover MUST come after a:link and a:visited
  - a:active MUST come after a:hover

CSS List

- List Property Types
  - The list-style-type
    - used to control the shape or appearance of the marker
  - The list-style-image
    - to set an image as a marker rather than a bullet or number
  - The list-style-position
    - specifies whether a long point that wraps to a second line should align with the first line or start underneath the start of the marker.
  - The marker-offset
    - specifies the distance between a marker and the text in the list
  - The list-style
    - serves as shorthand for the preceding properties

CSS Lists

Image Properties	Example	Possible Values
list-style-type	list-style-type:decimal; list-style-type:square;	*None, disc, circle, square decimal, lower-alpha, upper-alpha, lower-roman, upper-roman*
list-style-image	list-style-image:url(/images/bullet.gif)	
list-style-position	list-style-position : outside;	*inside, outside*
marker-offset	marker-offset:2em;	
Shorthand property	list-style: square inside url(“bullet.jpg”);	

The CSS Box Model

- All HTML elements can be considered as boxes
- The CSS box model is essentially a box that wraps around HTML elements, and it consists of:
  - margins,
  - borders,
  - padding, and
  - the actual content

The CSS Box Model

- Content
  - The content of the box, where text and images appear
- Padding
  - Clears an area around the content. The padding is transparent
- Border
  - A border that goes around the padding and content
- Margin
  - Clears an area outside the border. The margin is transparent
    - Width and height attributes are used to set the width and height of an element content
    - Total element width = width + left padding + right padding + left border + right border + left margin + right margin

CSS - Margins

- The margin property
  - defines the space around an HTML element
  - it is possible to use negative values to overlap content
- Margin Property Types
  - The margin-bottom: specifies the bottom margin of an element
  - The margin-top: specifies the top margin of an element
  - The margin-left: specifies the left margin of an element
  - The margin-right: specifies the right margin of an element
  - The margin: specifies a shorthand property for setting the margin properties in one declaration

CSS Margins

Margin Properties	Example	Possible Values
margin-bottom	margin-bottom: 15px;	*length or %*
margin-top	margin-top: 15px;	*length or %*
margin-left	margin-left: 15px;	*length or %*
margin-right	margin-right: 15px;	*length or %*
Shorthand Property	margin: 15px;	*All margin=15px*
	margin:10px 2%;	*top=bottom=10px* *left=right=2%*
	margin: -10px 2% 10px;	*top=-10px* *left=right=2%* *bottom=10px*
	margin: -10px 2% 10px auto;	*top=-10px* *right=2%* *bottom=10px* *left=set by the browser*
	margin: auto; margin: inherit;	*auto, inherit*

CSS - Borders

- Border Properties
  - The border-color
    - specifies the color of a border
  - The border-style
    - specifies whether a border should be solid, dashed line, double line, or one of the other possible values
  - The border-width
    - specifies the width of a border

CSS Borders

Border Properties	Example	Possible Values
border-color	border-bottom-color:#009900; OR border-color: red; border-color: red green; border-color: red green yellow; border-color: red green yellow blue;	
border-style	border-bottom-style: solid; OR border-style: groove; Border-style: dotted solid; Border-style: dotted solid groove;	*dotted, solid, double, dashed*
border-width	border-bottom-width:4px; border-left-width: thin; border-right-width: medium; OR border-width: thick medium;	*thin, thick, medium, length or %*
Shorthand property	border:4px solid red;	

CSS Paddings

- The padding property
  - used to specify how much space should appear between the content of an element and its border
- Padding Property Types
  - padding-bottom: specifies the distance between content of an element and its bottom border
  - padding-top : specifies the distance between content of an element and its top border
  - padding-left: specifies the distance between content of an element and its left border
  - padding-right: specifies the distance between content of an element and its right border
  - padding: serves as shorthand for the preceding properties

CSS Padding: Example

Padding Properties	Example	Possible Values
padding-bottom	padding-bottom: 15px;	*length or %*
padding-top	padding-top: 15px;	*length or %*
padding-left	padding-left: 15px;	*length or %*
padding-right	padding-right: 15px;	*length or %*
Shorthand Property	padding: 15px;	*All padding =15px*
	padding:10px 2%;	*top=bottom=10px* *left=right=2%*
	padding: 10px 2% 20px;	*top=10px* *left=right=2%* *bottom=20px*
	padding: 10px 2% 20px -30px;	*top=10px* *right=2%* *bottom=20px* *left=30px*
	padding: auto; padding: inherit;	*auto, inherit*