

World Wide Web

- The **World Wide Web** is abbreviated as WWW and is commonly known as the web. The WWW was initiated by CERN (European library for Nuclear Research) in 1989.
- **WWW** can be defined as the collection of different websites around the world, stored in web servers and connected to local computers through the internet.
- These websites contain text pages, digital images, audios, videos, etc. Users can access the content of these sites from any part of the world over the internet using their devices such as computers, laptops, cell phones, etc. The WWW, along with internet, enables the retrieval and display of text and media to your device.
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Web Development

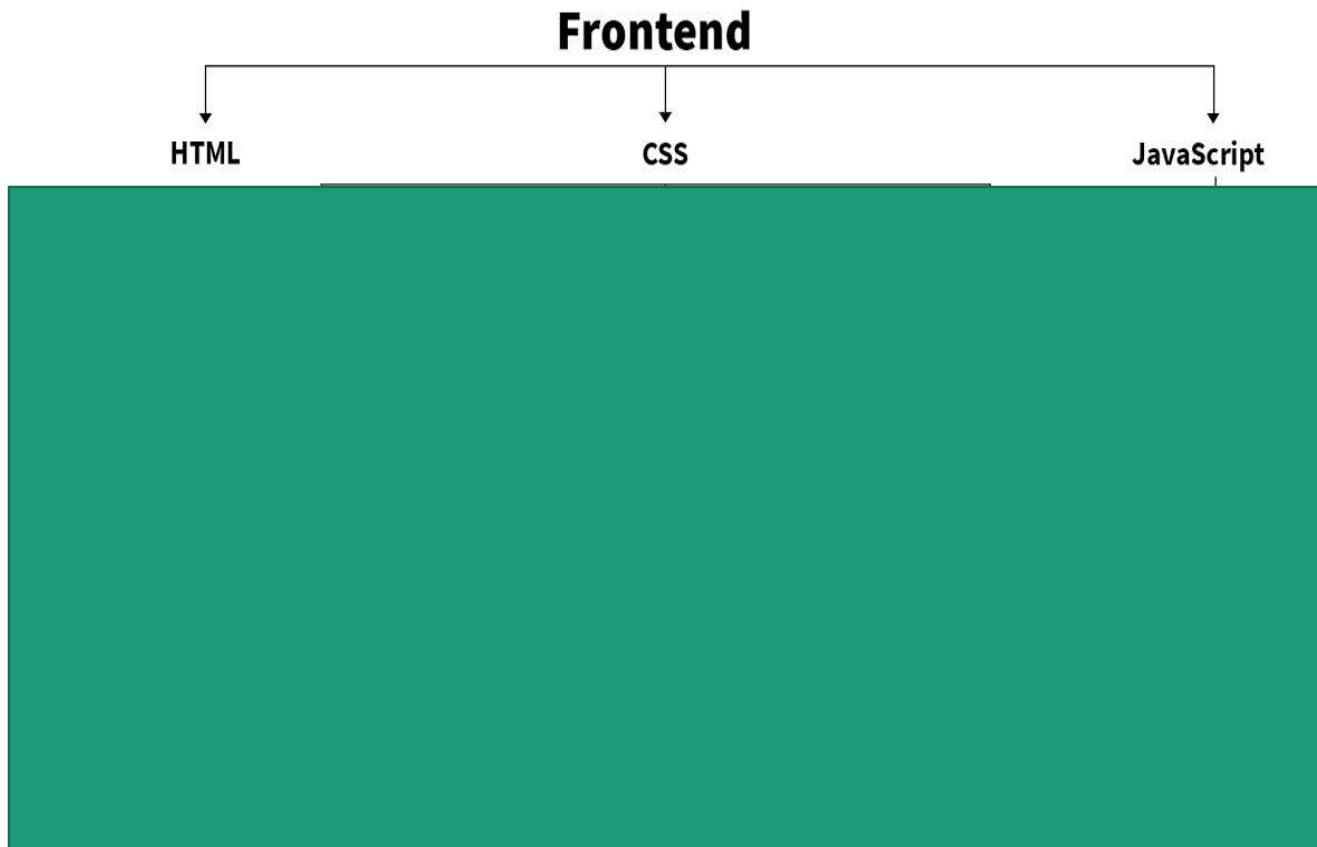
- Types of web developers
- There are different types of web developers who focus on different areas. These include:
- **Frontend developers:** Frontend developers implement web page designs using HTML and CSS. They make sure the website looks pretty on different devices, and that the forms and buttons work.
- **Backend developers:** Backend developers create the backbone of the web application. They write code logic that handles a user's input (for example, what should happen when you click the submit button after filling in a form).
- **Full stack developers:** Full stack developers do bits of both backend and frontend.

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Frontend Development

<https://www.geeksforgeeks.org/web-development/>

- **Frontend Development**
- The part of a website that the user interacts directly is termed as front end. It is also referred to as the ‘client side’ of the application.



Skills required to become a Web Developer

- HTML, CSS and JavaScript—the three pillars of the web.
- Together, these three pillars make every website work,
- defining the content to be displayed (HTML),
- telling a browser how to display that content (CSS),
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- and making the content interactive with JavaScript, respectively. [Makes the website dynamic. Responds to user.]

Setting up your developer environment

- Two tools that every web developer uses:
 - A text editor to write code
 - A web browser to see what we're building
- A web browser allows us to view webpages after writing and making changes to our code.
- Google Chrome and Sublime are recommended.
- Google Chrome can be downloaded from
- <https://www.google.com/chrome/>
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- A text editor is a piece of software that helps us edit text. Sublime Text is a popular text editor
- Sublime Text can be downloaded from
- <https://www.sublimetext.com/3>.

Creating your first webpage

- HTML stands for **HyperText Markup Language**. In a nutshell:
- **Hypertext** simply means text that can jump from one point to the other. If you have ever clicked a link on a page (try this: google.com), you've used hypertext.
- **Markup** is simply a way to structure content so that we can distinguish between different blocks of text.
- **Language** means a language. Computer languages are similar to real world languages like English and German, just very strict in their syntax.
- **HTML** lets us structure our page and the data in it. Once we have a structure and data to work with, we can focus on style and functionality.

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Introduction to HTML5

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Introduction

- HTML5 (HyperText Markup Language 5)
- Markup language (NOT a programming language)
- Specifies the structure and content of documents that are displayed in web browsers

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Editing HTML5

- You can use a text editor (such as Notepad,TextEdit, vi) to create HTML5 documents
- Make sure to save the file with the .html filename extension
- Recommendation:
 - Sublime text:
 - Highlights HTML syntax

Creating a Basic WebPage

First HTML5 Example

```
1  <!DOCTYPE html>
2
3  <!-- Fig. 2.1: main.html -->
4  <!-- First HTML5 example. -->
5  <html>
6      <head>
7          <meta charset = "utf-8">
8          <title>Welcome</title>
9      </head>
10
11     <body>
12         <p>Welcome to HTML5!</p>
13     </body>
14 </html>
```

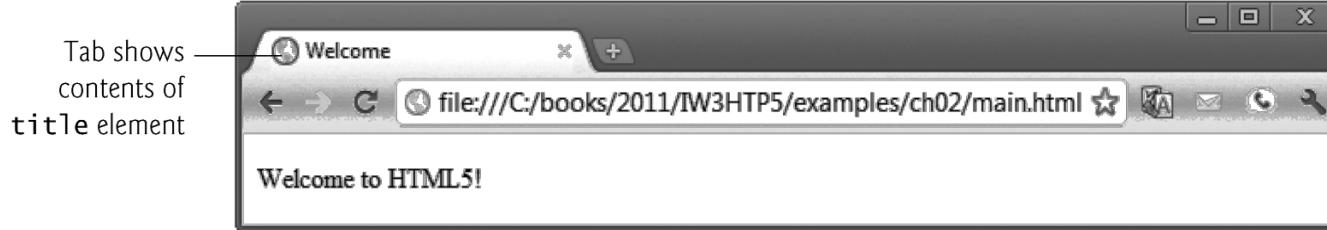


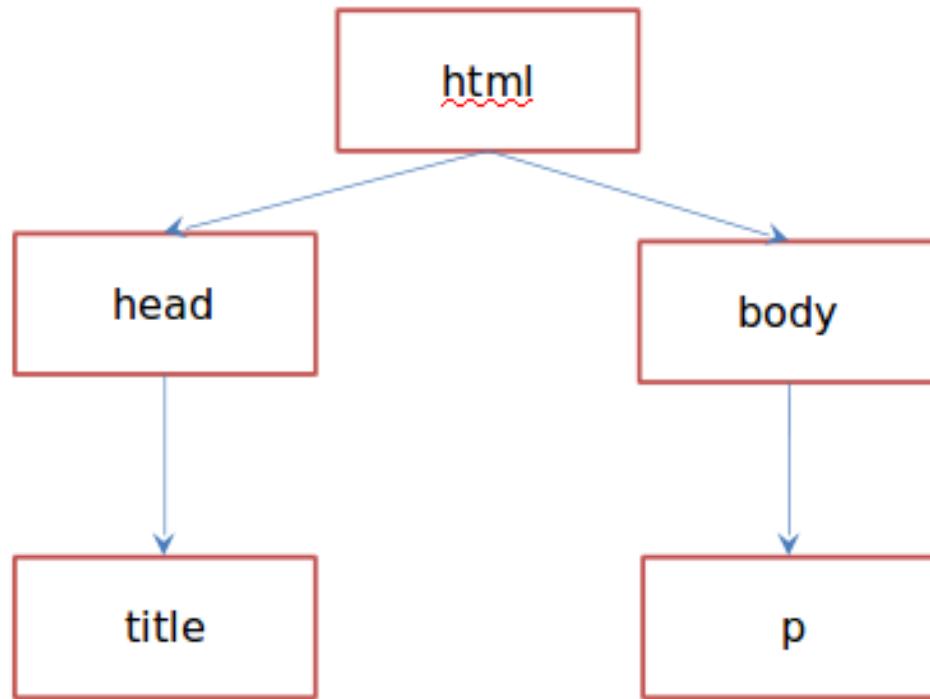
Fig. 2.1 | First HTML5 example.

HTML Page Structure

```
<html>
  <head>
    <title>Hello World </title>
  </head>

  <body>
    <p>Welcome to the World </p>
  </body>
</html>
```

HTML Tree Structure



First HTML5 Example

Document Type Declaration

- The document type declaration (DOCTYPE): With the help of this statement, the developer let the browser know that the following document is an HTML document.
- We will include it in all of our HTML5 pages
- The declaration is not an HTML element or tag. It is an information that lets the browser know about the version of or standard of HTML or any other markup language that is being used in the document.

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First HTML5 Example

Comments

- Improve readability and describe the content of a document.
- The browser ignores comments when your document is rendered.
- Comments start with <!-- and end with -->.
- Uses a pre-defined set of elements to identify content types.
- Elements contain one or more "tags".
- HTML tags are not case sensitive. *Madhu Bhan*
- An element is a combination of a tag and its character data.

```
<title>Hello World </title>
<body><p>Welcome to the world </p></body>
<a href="www.google.com">Google </a>
<br/>
```

First HTML5 Example

- ***html, head and body Elements***

- The **html** element encloses the **head** section(element) and the **body** section (element).
- The **head section** contains information about the HTML5 document, such as the character set (UTF-8, the most popular character-encoding scheme which helps the browser determine how to render the content—and the title. In other words, it tells the browser to use the utf-8 character encoding when translating machine code into human-readable text and vice versa to be displayed in the browser
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- The **body** section contains the page's content, which the browser displays when the user visits the web page.

First HTML5 Example (cont.)

Start Tags and End Tags

HTML5 documents *delimit* most **elements** with a **start tag** and **end tag**.

A **start tag** consists of the element name inside brackets

- For example, `<html>`

An **end tag** consists of the element name preceded by a forward

slash (/) in angle brackets

- For example, `</html>`

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First HTML5 Example (Cont.)

Title Element

- Describes the web page.
- Usually appears in the title bar, in the browser tab
- Search engines use the title for indexing purposes and when displaying results

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First HTML5 Example (Cont.)

Paragraph Element (<p>...</p>)

- All text placed between the <p> and </p> tags forms one paragraph.
- Browser places extra space below and above the paragraph

Tags and attributes

- The syntax of the usage of the tags is
`<tagnname attribute>`
`</tagnname>`
- Ex: `<p></p>`
`<a>` `<a>` tag defines a hyperlink
`` *unordered (bulleted) list*

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Headings

- HTML5 provides six heading elements (h1 through h6) for specifying the *relative importance* of information
 - Heading element h1 is considered the most significant heading and is rendered in the largest font.
 - Each successive heading element (i.e., h2, h3, etc.) is rendered in a progressively smaller font.

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```
1  <!DOCTYPE html>
2
3  <!-- Fig. 2.2: heading.html -->
4  <!-- Heading elements h1 through h6. -->
5  <html>
6      <head>
7          <meta charset = "utf-8">
8          <title>Headings</title>
9      </head>
10
11     <body>
12         <h1>Level 1 Heading</h1>
13         <h2>Level 2 heading</h2>
14         <h3>Level 3 heading</h3>
15         <h4>Level 4 heading</h4>
16         <h5>Level 5 heading</h5>
17         <h6>Level 6 heading</h6>
18     </body>
19 </html>
```

Fig. 2.2 | Heading elements h1 through h6. (Part I of 2.)

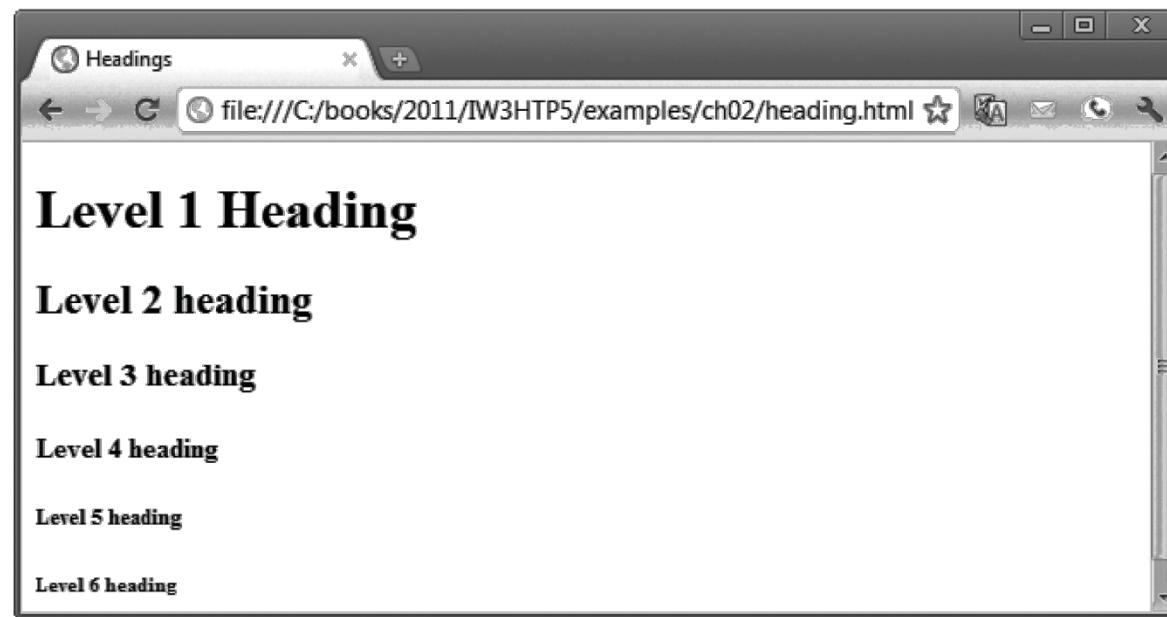


Fig. 2.2 | Heading elements h1 through h6. (Part 2 of 2.)

Linking

- A hyperlink references or links to other resources, such as HTML5 documents and images.
- Web browsers typically *underline* text hyperlinks and color them *blue* by default.
- ` Go to Googles website `

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```
1 <!DOCTYPE html>
2
3 <!-- Fig. 2.3: links.html -->
4 <!-- Linking to other web pages. -->
5 <html>
6   <head>
7     <meta charset = "utf-8">
8     <title>Links</title>
9   </head>
10
11 <body>
12   <h1>Here are my favorite sites:</h1>
13   <p><strong>Click a name to visit that site.</strong></p>
14
15   <!-- create four text hyperlinks -->
16   <p><a href = "http://www.facebook.com">Facebook</a></p>
17   <p><a href = "http://www.twitter.com">Twitter</a></p>
18   <p><a href = "http://www.foursquare.com">Foursquare</a></p>
19   <p><a href = "http://www.google.com">Google</a></p>
20 </body>
21 </html>
```

Fig. 2.3 | Linking to other web pages. (Part I of 2.)



Fig. 2.3 | Linking to other web pages. (Part 2 of 2.)

Attributes

Many start tags have attributes that provide additional information about an element, which browsers use to determine how to process the element.

Each **attribute** has a **name** and a **value** separated by an equals sign (=).

Attribute **href(hypertext reference)** specifies a resource's location, such as

- a web page
- a file
- an e-mail address

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Babu

Linking(Cont.)

- When a URL does not indicate a specific document on the website, the web server returns a default web page. This page is often called index.html, but most web servers can be configured to use any file as the default web page for the site.
- If the web server cannot locate a requested document, it returns an error indication to the web browser (known as a 404 error), and the browser displays a web page containing an error message.
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Linking(Cont.)

- Hyperlinking to an E-Mail Address
 - Anchors can link to an e-mail address using a mailto: URL
 - When a user clicks this type of anchored link, most browsers launch the default e-mail program (e.g., Mozilla Thunderbird, Microsoft Outlook or Apple Mail) to enable the user to write an e-mail message to the linked address.

```
1 <!DOCTYPE html>
2
3 <!-- Fig. 2.4: contact.html -->
4 <!-- Linking to an e-mail address. -->
5 <html>
6   <head>
7     <meta charset = "utf-8">
8     <title>Contact Page</title>
9   </head>
10
11  <body>
12    <p>
13      To write to <a href = "mailto:deitel@deitel.com">
14        Deitel & Associates, Inc.</a>, click the link and your default
15        email client will open an email message and address it to us.
16    </p>
17  </body>
18 </html>
```

Fig. 2.4 | Linking to an e-mail address. (Part I of 3.)



Fig. 2.4 | Linking to an e-mail address. (Part 2 of 3.)

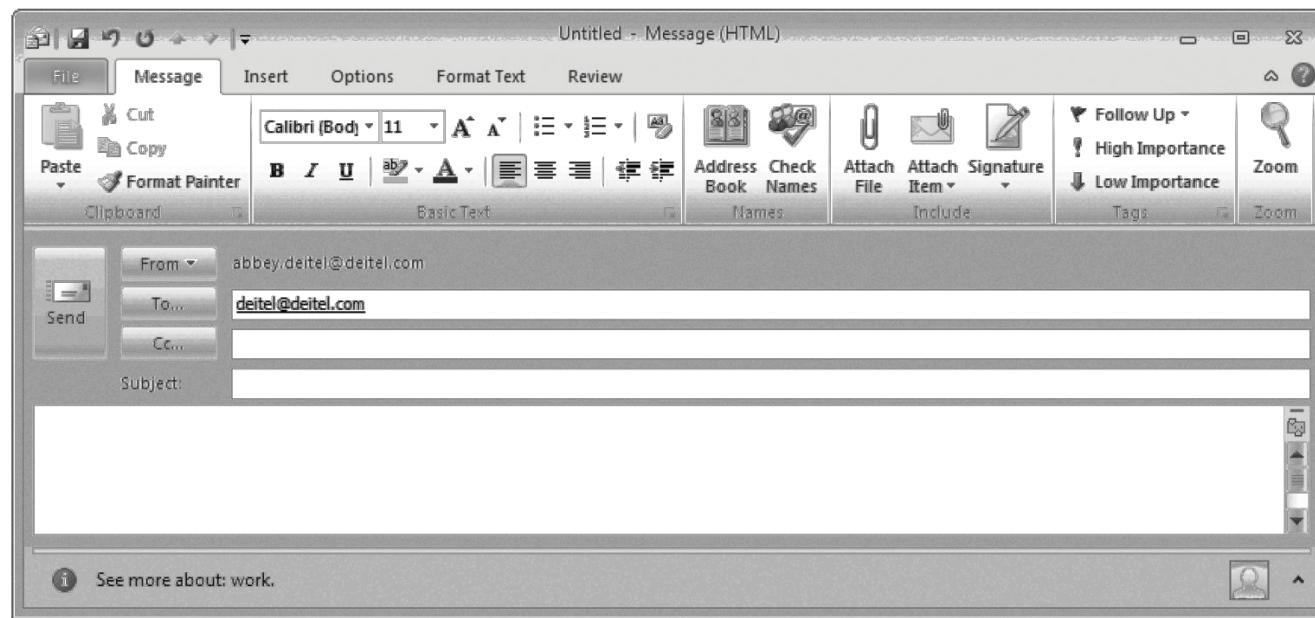


Fig. 2.4 | Linking to an e-mail address. (Part 3 of 3.)

Images

The most popular image formats used by web developers today are PNG(Portable Network Graphics) and JPEG(Joint Photographic Experts Group).

Users can create images using specialized software, such as Adobe Photoshop Express (www.photoshop.com), G.I.M.P. (www.gimp.org), Inkscape (www.inkscape.org) and many more.

Images may also be acquired from various websites, many of which offer royalty-free images.

```
1 <!DOCTYPE html>
2
3 <!-- Fig. 2.6: picture.html -->
4 <!-- Including images in HTML5 files. -->
5 <html>
6   <head>
7     <meta charset = "utf-8">
8     <title>Images</title>
9   </head>
10
11  <body>
12    <p>
13      <img src = "cpphttp.png" width = "92" height = "120"
14        alt = "C++ How to Program book cover">
15      <img src = "jhttp.png" width = "92" height = "120"
16        alt = "Java How to Program book cover">
17    </p>
18  </body>
19 </html>
```

Fig. 2.6 | Including images in HTML5 files. (Part 1 of 2.)



Lists

- Unordered list element `ul`
 - creates a list in which each item in the list begins with a bullet symbol (typically a disc)
 - Each entry is an `li` (list item) element.
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Most web browsers render these elements with a line break and a bullet symbol at the beginning of the line.

List example

```
<ul>

    <li>First list element</li>
    <li>Second list element</li>
    <li>Third list element</li>

</ul>

<ol>

    <li>First list element</li>
    <li>Second list element</li>
    <li>Third list element</li>

</ol>
```

```
1  <!DOCTYPE html>
2
3  <!-- Fig. 2.10: links2.html -->
4  <!-- Unordered list containing hyperlinks. -->
5  <html>
6      <head>
7          <meta charset = "utf-8">
8          <title>Links</title>
9      </head>
10
11     <body>
12         <h1>Here are my favorite sites</h1>
13         <p><strong>Click on a name to go to that page</strong></p>
14
15         <!-- create an unordered list -->
16         <ul>
17             <!-- the list contains four list items -->
18             <li><a href = "http://www.youtube.com">YouTube</a></li>
19             <li><a href = "http://www.wikipedia.org">Wikipedia</a></li>
20             <li><a href = "http://www.amazon.com">Amazon</a></li>
21             <li><a href = "http://www.linkedin.com">LinkedIn</a></li>
22         </ul>
23     </body>
24 </html>
```

Fig. 2.10 | Unordered list containing hyperlinks. (Part I of 2.)



Fig. 2.10 | Unordered list containing hyperlinks. (Part 2 of 2.)

Lists(Cont.)

Nested Lists

- Lists may be *nested* to represent *hierarchical* relationships, as in a multi-level outline.
- The ordered-list element **ol** creates a list in which each item begins with a number.
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```
<body>
  <h3>List of subjects for CSE</h3>
  <ol>

    <li>Semester 1</li>
    <ul>
      <li>Physics</li>
      <li>Graphics</li>
    </ul>

    <li>Semester 2</li>
    <ul>
      <li>Fundamentals of computing</li>
      <li>Object oriented programming</li>
    </ul>

  </ol>
</body>
```

List of subjects for CSE

1. Semester 1
 - o Physics
 - o Graphics
2. Semester 2
 - o Fundamentals of computing
 - o Object oriented programming

Tables

- Tables are frequently used to organize data into *rows* and *columns*.
- The **table** element defines an HTML5 table
- The **caption** element specifies a table's title.

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Tables(Cont.)

- A table can be split into three distinct sections:
 - Head (`thead` element)
 - Table titles
 - Column headers
 - Body (`tbody` element)
 - Primary table data
 - Table Foot (`tfoot` element)
 - Calculation results
 - Footnotes

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Common HTML Table tags

- <tr> - represents rows
- <td> - used to create data cells
- <th> - used to add table headings
- <caption> - used to insert captions
- <thead> - adds a separate header to the table
- <tbody> - shows the main body of the table
- <tfoot> - creates a separate footer for the table

Tables(Cont.)

- tr Element
 - Defines individual table rows
- Element th
 - Defines a header cell
- td Element
 - Contains table data elements

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th	Fruits	Price
td	Apple	150
	Mango	100

Table example

```
<body>
  <h2>Tables</h2>
  <table border="1">
    <caption><strong>Table of fruits</strong>
    </caption>
    <!--Insert headings-->
    <tr>
      <th>Fruits</th>
      <th>Price</th>

    </tr>
    <!--First row-->
    <tr>
      <td>Apple</td>
      <td>150</td>
    </tr>
    <!--Second row -->
    <tr>
      <td>Mango</td>
      <td>100</td>
    </tr>
  </table>
</body>
```

Tables

Table of fruits

Fruits	Price
Apple	150
Mango	100

Tables(Cont.)

Using rowspan and colspan with Tables

You can merge data cells with the rowspan and colspan attributes.

- The values of these attributes specify the number of rows or columns occupied by the cell.
- Can be placed inside any data cell or table header cell.

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Nested table(Example)

```
<table border="1">
  <caption>Phones</caption>
  <thead>
    <!--First table headings-->
    <th>Phone</th>
    <th colspan="4">Specification</th>
  </thead>
  <tbody>
    <tr>
      <!--Second table headings-->
      <td>
        <th>Price</th>
        <th>Ram</th>
        <th>Processor</th>
      </td>
    </tr>
    <!--Inser the phone data-->
    <tr>
      <td>Samsung</td>
      <td>25000</td>
      <td>1GB</td>
      <td>Snapdragon 801</td>
    </tr>
    | 
    <tr>
      <td>Nexus</td>
      <td>25000</td>
      <td>1GB</td>
      <td>Snapdragon 801</td>
    </tr>
  </tbody>
</table>
```

Phones

Phone	Specification		
	Price	Ram	Processor
Samsung	25000	1GB	Snapdragon 801
Nexus	25000	1GB	Snapdragon 801

Exercise

- Create a table as shown below.
- Hint : take colspan=3 and rowspan=2 wherever necessary.

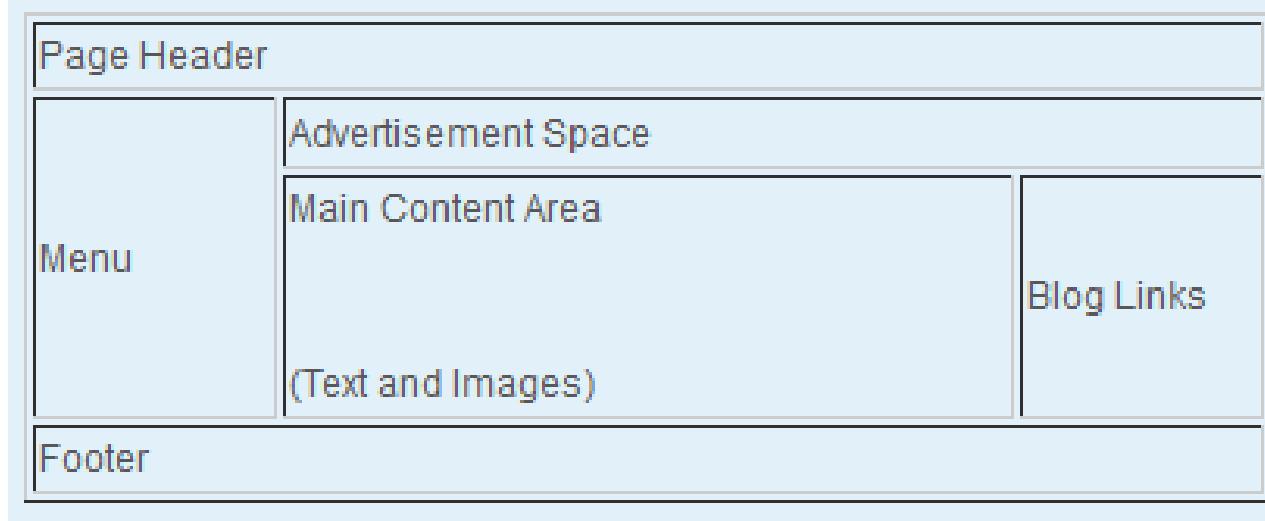


Table - example

- <>html>
- <body>
- <table style border = '1' bgcolor ="cyan">
- <tr>
- <th colspan="3">Table Header</th>
- </tr>
- <tr>
- <th rowspan=2>Menu</th>
- <th colspan=2>advertisement space</th>
- </tr>
- <tr>
- <td>Main Content Area

- Text and Images </td>
- <td>Blog Links</td>
- </tr>
- <tr>
- <th colspan=3> Footer </th>
- </tr>
- </table>
- </body>

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Introduction HTML5 forms

- **Form:** a group of UI controls that accepts information from the user and sends the information to a web server.

```
<form>  
  -  
  form elements  
  -  
</form>
```

Sample Form

HTML Forms

First name:

Last name:

Sample exercise

- <!DOCTYPE html>
- <html>
- <body>
- <h2>HTML Forms</h2>
- <form>
- <label>First name:</label>

- <input type="text" id="fname" name="fname" value="John">

- <label>Last name:</label>

- <input type="text" id="lname" name="lname" value="Doe">

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- <input type="submit" value="Submit">
- </form>
- </body>
- </html>

Input elements for form

- HTML5 has some new form input types.
 - Text
 - Radio
 - submit
 - date
 - datetime
 - email
 - month
 - number
 - range
 - tel
 - time
 - url
 - week

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<input>-- Name and value

- Text

- Name

```
<form>
    First name:<br>
    <input type="text" name="firstname">
```

First name:

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- Value

```
First name:<br>
<input type="text" name="firstname" value="Srinidhi">
```

First name:

<input> Radio and Checkboxes

- Radio

```
<input type="radio" name="gender">Male  
<input type="radio" name="gender">Female
```

Gender:
 Male Female

- Checkbox

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```
<br>Travel by:  
<input type="checkbox" name="bike">Bike<br>  
<input type="checkbox" name="car">Car<br>  
...
```

Travel by: Bike
 Car

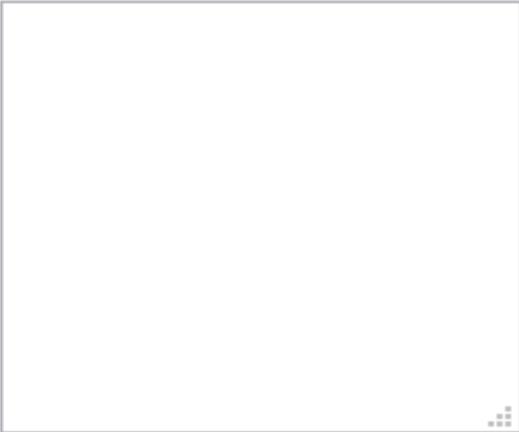
- Any value to be default checked use checked="checked"

Text area

- The **<textarea>** element defines a multi-line input field.

```
<textarea name="comments" rows="10" cols="20">  
</textarea>
```

Comments:

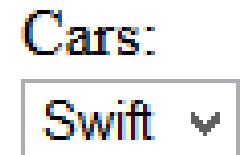


A large, empty rectangular text area box. It has a thin gray border and a light gray background. At the bottom of the box, there are two horizontal scroll bars: a shorter one on the left and a longer one on the right. The text "Comments:" is positioned above the top-left corner of the text area.

Drop down list- <select>

- The **<select>** element defines a **drop-down** list:
- The **<option>** elements defines the options to select.
- The list will normally show the first item as selected.

```
<select name="cars">
  <option value="swift">Swift</option>
  <option value="Alto">alto</option>
  <option value="fiat">Fiat</option>
  <option value="audi">Audi</option>
</select>
```



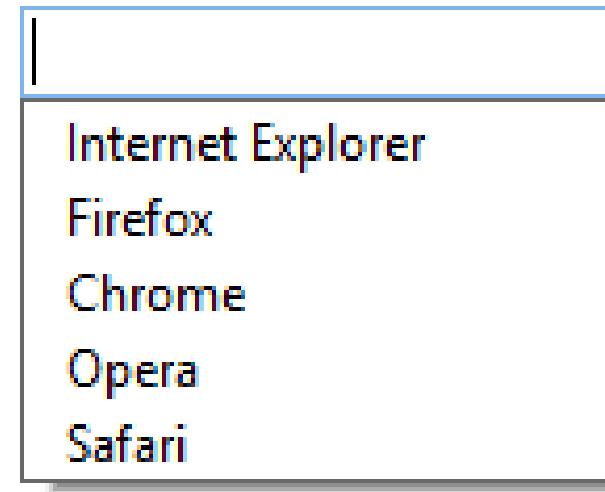
```
<option value="audi" selected>Audi</option>
```



Data list

- The **<datalist>** element specifies a list of pre-defined options for an **<input>** element.
- Users will see a drop-down list of pre-defined options as they input data.
- The **list** attribute of the **<input>** element, must refer to the **id** attribute of the **<datalist>** element.

```
<input list="browsers">
<datalist id="browsers">
  <option>Chrome</option>
  <option>Safari</option>
  <option>Firefox</option>
  <option>IE</option>
</datalist>
```



Number

- In order to specify the quantity input type of number can be used.
- This should be associated with min and max value of number in the field.
- You can also control the intervals of increasing and decreasing values using **step** attribute.

```
Quantity  
<input type="number" name="quantity" value="1" min="1" max="5">
```

Quantity 1 

```
<input type="number" name="quantity" value="1" step="5"  
min="1" max="10">
```

Quantity 6 

Date and date picker

- The `<input type="date">` is used for input fields that should contain a date.
- Date picker is supported in **chrome** and others but **not in firefox**.
- You can control the min and max dates to be allowed using min and max attributes.

Birthday:
`<input type="date" name="bday">`

Birthday: `dd - mm - yyyy`

Birthday:

July, 2015

Mon	Tue	Wed	Thu	Fri	Sat	Sun
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2

Time and Date-time-local

- The `<input type="time">` allows the user to select a time

Select a time:

```
<input type="time" name="usr_time">
```

Select a time: 

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- The `<input type="datetime-local">` allows the user to select a date and time

Birthday (date and time):

```
<input type="datetime-local" name="bdaytime">
```

Birthday (date and time):

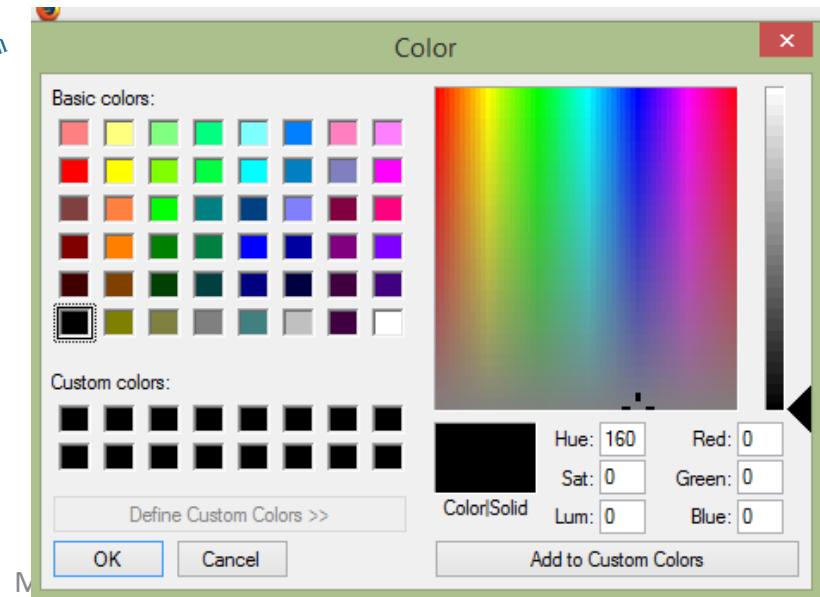
Color

- The `<input type="color">` is used for input fields that should contain a color.

```
..... Select your favorite color:  
<input type="color" name="favcolor">  
  
<br>
```

Madhu .. an

Select your favorite color:



Range

- The `<input type="range">` is used for input fields that should contain a value within a range. Defines a control for entering a number whose exact value is not important (like a slider control).

Points:

```
<input type="range" name="points" min="0" max="10">
```

Points:



```
0 <input type="range" min="0" max="255" name="sId2" >255
```



Email and Password

- The **<input type="email">** is used for input fields that should contain an e-mail address.
- **<input type="password">** defines a **password field**

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```
E-mail:  
<input type="email" name="email"> <br>  
User password:<br>  
<input type="password" name="psw"><br>
```

E-mail:

User password:

File

- To upload any images or files we use input type as file.
- To upload multiple files we must **multiple** as attribute with input type file.

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Upload: <code><input type="file" name="img"></code>	Upload: <input type="button" value="Browse..."/> No file selected.
Upload: <code><input type="file" name="img" multiple></code>	Upload: <input type="button" value="Browse..."/> 2 files selected.



Required and placeholder

- The placeholder attribute specifies a hint that describes the expected value of an input field (a sample value or a short description of the format).
- The required attribute is a boolean attribute.
- When present, it specifies that an input field must be filled out before submitting the form.

```
First name:<br>
<input type="text" name="firstname" placeholder="Firstname"
required>
```

First name:

Firstname

Firstname

Please fill in this field.

Pattern

- The pattern attribute specifies a regular expression that the <input> element's value is checked against.
- **Note:** The pattern attribute works with the following input types: text, search, url, tel, email, and password.
- <input pattern="*regexp*">
- *regexp* -Specifies a regular expression that the <input> element's value is checked against

Input Types

- <input type="button">
- <input type="checkbox">
- <input type="color">
- <input type="date">
- <input type="datetime-local">
- <input type="email">
- <input type="file">
- <input type="image">
- <input type="number">
- <input type="password">
- <input type="radio">
- <input type="search">
- <input type="submit">
- <input type="tel">
- <input type="text">
- <input type="url">

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Brackets

Brackets are used to find a range of characters:

Expression	Description
<u>[abc]</u>	Find any character between the brackets
<u>[^abc]</u>	Find any character NOT between the brackets
<u>[0-9]</u>	Find any character between the brackets (any digit)
<u>[^0-9]</u>	Find any character NOT between the brackets (any non-digit)
<u>(x y)</u>	Find any of the alternatives specified

Metacharacter

Expression	Description
\d	Matches any digit that is same as[0-9]
\w	matches any letter, digit and underscore character
\s	matches a whitespace character — that is, a space or tab
\t	matches a tab character only
.	<p>Special Characters</p> <p>this notation will match any digit, letter or symbol except newline</p>

Quantifiers

Quantifier	Description
<u>n+</u>	Matches any string that contains at least one <i>n</i>
<u>n*</u>	Matches any string that contains zero or more occurrences of <i>n</i>
<u>n?</u>	Matches any string that contains zero or one occurrences of <i>n</i>
<u>n{X}</u>	Matches any string that contains a sequence of <i>X n's</i>
<u>n{X,Y}</u>	Matches any string that contains a sequence of <i>X to Y n's</i>
<u>n{X,}</u>	Matches any string that contains a sequence of at least <i>X n's</i>
<u>n\$</u>	Matches any string with <i>n</i> at the end of it
<u>^n</u>	Matches any string with <i>n</i> at the beginning of it
<u>?=n</u>	Matches any string that is followed by a specific string <i>n</i>
<u>?!n</u>	Matches any string that is not followed by a specific string <i>n</i>

Pattern examples

- To check for a postal code of six numbers.

```
Postal code:  
<input type="text" name="code" pattern="[0-9]{6}"  
|title="6 numbers should be present">
```

- An <input> element with type="password" that must contain 8 or more characters

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```
<input type="password" id="pwd" name="pwd"  
pattern=".{8,}" title="Eight or more characters">
```

Pattern examples

- To check for a Country code of 3 alphabet characters
- <input type="text" id="country_code" name="country_code" pattern="[A-Za-z]{3}" title="Three letter country code">

- To check for a password with one number, one lowercase and one uppercase character with minimum 8 characters length

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```
<input type=password name=pwd  
pattern="^(?=.*[a-z])(?=.*[A-Z])(?=.*\d)[a-zA-Z\d]{8,}$"
```

Exercise

Assume we would like our password to contain all of the following, but in no particular order:

1. At least one digit [0-9]
-
2. At least one lowercase character [a-z]
3. At least one uppercase character [A-Z]
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4. At least one special character
[*.!@#\$%^&(){}[];<>,.?/_+-|=|\\]
5. At least 8 characters in length, but no more than 32.

Password

Pattern :

```
^(?=.*[0-9])(?=.*[a-z])(?=.*[A-Z])(?=.*[*.!@#$%^&(){}[];<>,.?/_+-=|\]).{8,32}$
```

Dissecting the pattern

^	Match the beginning of the string
(?=.*[0-9])	Require that at least one digit appear anywhere in the string
(?=.*[a-z])	Require that at least one lowercase letter appear anywhere in the string
(?=.*[A-Z])	Require that at least one uppercase letter appear anywhere in the string
(?=.*[*.!@#\$%^&(){}[];<>,.?/_+-= \])	Require that at least one special character appear anywhere in the string
.{8,32}	The password must be at least 8 characters long, but no more than 32
\$	Match the end of the string.

Regular expression for email id

pattern= "[a-zA-Z0-9+_.-]+@[a-zA-Z0-9.-]+\\$"

Where,

- ^ matches the starting of the sentence.
- [a-zA-Z0-9+_.-] matches one character from the English alphabet (both cases), digits, “+”, “_”, “.” and, “-” before the @ symbol.
- + indicates the repetition of the above-mentioned set of characters one or more times.
- @ matches itself.
- [a-zA-Z0-9.-] matches one character from the English alphabet (both cases), digits, “.” and “-” after the @ symbol.
- \$ indicates the end of the sentence.

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Fieldset

- The `<fieldset>` tag is used to group related elements in a form.
- The `<fieldset>` tag draws a box around the related elements.
- With the `<fieldset>` we use `<legend>` to denote the group of elements of the form they belong.

```
<form>
  <fieldset>
    <legend>Personal</legend>
    Name:
    <input type="text" name="name"><br>
    Age:
    <input type="text" name="age"><br>
  </fieldset>
  <br>
  <fieldset>
    <legend>Education</legend>
    10th:
    <input type="text" name="name"><br>
    B.E:
    <input type="text" name="age">
  </fieldset>
```

The diagram illustrates the visual representation of the HTML code. It shows two separate boxes, each with a legend title above it. The first box is labeled "Personal" and contains two input fields, one for "Name" and one for "Age". The second box is labeled "Education" and contains two input fields, one for "10th" and one for "B.E.". Each input field is represented by a rectangular box with a placeholder text inside.

Button

- The `<button>` tag defines a clickable button.
- Inside a `<button>` element you can put content, like text or images. This is the difference between ~~this~~^{Media Buttons} element and buttons created with the `<input>` element.

```
<button>
  
</button>
```



Submit

The `<input type="submit">` defines a button for submitting the form data to a form-handler.

The form-handler is typically a file on the server with a script for processing input data.

The form-handler is specified in the form's action attribute.

- `<form action="/action_page.php">`
`<label for="fname">First name:</label>
`
`<input type="text" id="fname" name="fname" value="John">
`
`<label for="lname">Last name:</label>
`
`<input type="text" id="lname" name="lname" value="Doe">

`
`<input type="submit" value="Submit">`
`</form>`

Reset

`<input type="reset">` defines a reset button which resets all form values to its initial values.

```
<form>
  <div>
    <label for="example">Type in some sample text</label>
    <input id="example" type="text" />
  </div>
  <div> <input type="reset" value="Reset the form" />
</div>
</form>
```

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The HTML video tag is used for streaming video files such as a movie clip, song clip on the web page.(mp4,webM,ogg)

- **controls attribute**: It defines the video controls which is displayed with play/pause buttons..
- **width and height attributes**: If height and width are not set, the page might flicker while the video loads.
- **src**: It specifies the source URL of the video file..

The browser will use the first recognized format.

Sample Code

- <body>
- <video width="320" height="240" controls>
 <source src="movie.mp4" type="video/mp4">
 <source src="movie.ogg" type="video/ogg">
 Your browser does not support the video tag.
 </video>
- </body>

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Frameset

- HTML frames are used to divide your browser window into multiple sections where each section can load a separate HTML document. A collection of frames in the browser window is known as a frameset. The window is divided into frames in a similar way the tables are organized: into rows and columns.
- To use frames on a page we use `<frameset>` tag instead of `<body>` tag. The `<frameset>` tag defines, how to divide the window into frames. The **rows** attribute of `<frameset>` tag defines horizontal frames and **cols** attribute defines vertical frames. Each frame is indicated by `<frame>` tag and it defines which HTML document shall open into the frame.
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Sample Code

- <!DOCTYPE html>
- <html>
- <head>
- <title>HTML Frames</title> </head>
- <frameset rows = "20%,60%,20%">
- <frame name = "top" src = "bullseyepdf1.png" />
- <frame name = "main" src = "bullseyepdf2.png" />
 MCA17
Bhanu Bhanu
- <frame name = "bottom" src = "bullseyepdf3.png" />
- <noframes>
- <body>Your browser does not support frames.</body>
- </noframes>
- </frameset>
- </html>

Frameset

- The <noframes> tag was used in HTML 4 to act as a backup for those browsers that do not support frames
- The <iframe> tag **specifies an inline frame**. An inline frame is used to embed another document within the current HTML document.
- *<iframe src = "demo_iframe.htm" height="200" width="300" title="Iframe Example"></iframe>*
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- By default, an iframe has a border around it. To remove the border, add the style attribute and use the CSS border property:
- *<iframe src="demo_iframe.htm" style="border:none;" title="Iframe Example"></iframe>*

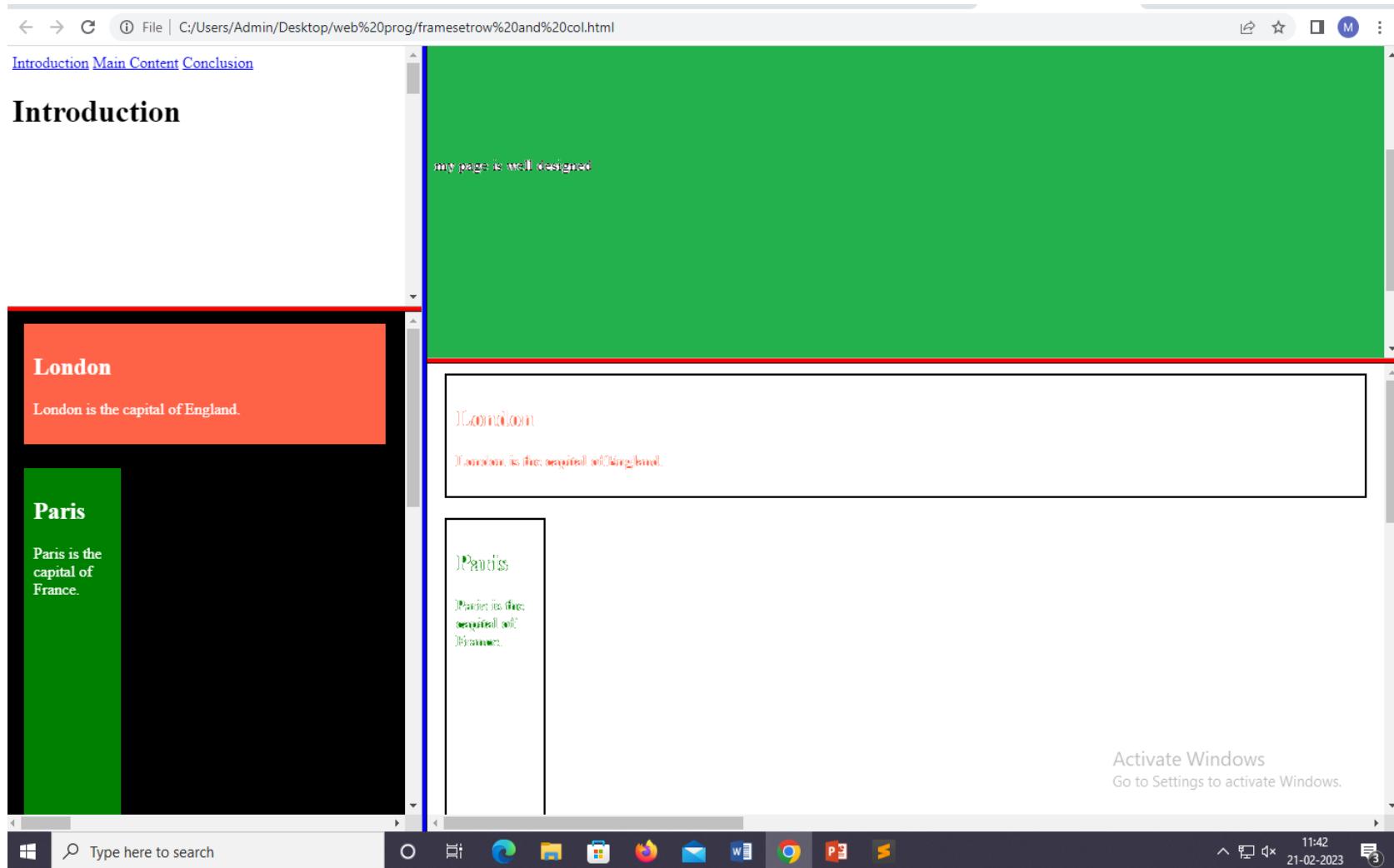
Frameset

- The src attribute defines the URL of the page to embed
- Always include a title attribute (for screen readers)
- The height and width attributes specify the size of the iframe
- Use border:none; to remove the border around the iframe
- The main difference between frame and frameset in HTML is that *frame* holds a separate document, while the frameset holds one or more frames.

Sample code

- <HTML>
- <frameset cols="30%, 70%" bordercolor="blue" noresize="noresize">
- <frameset rows="100, 200" bordercolor="red">
- <frame name="first-frame" src="div link.html">
- <frame name="second-frame" src="header.html">
- </frameset>
- <frameset rows="200, 300" bordercolor="red">
- <frame name="first-frame" src="em.html">
- <frame name="second-frame" src="header.html">
 Madhu ka header
- </frameset>
-
- <noframes>
- <p> This document contains frames content. Your browser does not support it. </p>
- </noframes>
- </frameset>
- </HTML>

Window divided into frames



Disadvantages of Frames

- There are few drawbacks with using frames, so it's never recommended to use frames in your webpages –
- Some smaller devices cannot cope with frames often because their screen is not big enough to be divided up.
- Sometimes your page will be displayed differently on different computers due to different screen resolution.
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- The browser's *back* button might not work as the user hopes.
- There are still few browsers that do not support frame technology.

Exercise 1: About Me Page

- Create a page named **aboutme.html** that describes you.
On your page, include the following information:
 - Your name
 - A description of yourself in two sentences or less.
 - Emphasize the most important word(s) by putting them in bold.
 - A list of courses you are taking right now.
 - Your 3 favorite movies, books, or TV shows, in order.
 - Make at least one link to an interesting site about that tv show/movie/book,
such as its [IMDB](#) page.
 - Two images, one that represents you when you're happy and the other to represent you when you're sad.
- <https://www.webstepbook.com/supplements/labsection/lab1-aboutme/>
-

Exercise 2

Free Coding Resources

Sites	Youtube Channels	Mobile Appss
Freecode Camp	Freecode Camp	Enki
W3Schools	Academind	Programming Hero
Khan Academy	The Coding Train	Solo learn

Sample code

- <table border = "1">
- <caption>Free Coding Resources</caption>
- <tr>
- <th>Sites</th><th>Youtube Channels</th>
- <th>Mobile Appss</th>
- </tr>
- <tr>
- <td>Freecode Camp</td><td>Freecode Camp</td>
- <td>Enki</td>
- </tr>
- <tr>
- <td>W3Schools</td> <td>Academind</td>
- <td>Programming Hero</td>
- </tr>
- <tr>
- <td>Khan Academy</td> <td>The Coding Train</td>
- <td>Solo learn</td>
- </tr>
- </table></body>

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Exercise 3

Using rowspan and colspan with Tables

A)

phones			
phone	Specifications		
price	ram	processor	processor
W3Schools	Academind	Programming Hero	processor
Khan Academy	The Coding Train	Solo learn	processor

B)



Sample code A

- <body>
- <table border ="1" bgcolor ="cyan">
- <caption>phones</caption>
- <tr>
- <th>phone</th>
- <th colspan="3">Specifications</th>
- </tr>
- <tr>
- <td>price</td> <td>ram</td> <td>processor</td><td>monitor</td>
- </tr>
- <tr>
- <td>W3Schools</td> <td>Academind</td> <td>Programming Hero</td> <td>screenr</td>
- </tr>
- <tr>
- <td>Khan Academy</td> <td>The Coding Train</td> <td>Solo learn</td><td>processor</td>
- </tr>
- </table></body>

Sample code B

- <html>
- <body>
- <table style border = '1' bgcolor ="cyan">
- <tr>
- <th colspan="3">Table Header</th>
- </tr>
- <tr>
- <th rowspan=2>Menu</th>
- <th colspan=2>advertisement space</th>
- </tr>
- <tr>
- <td>Main Content Area

- Text and Images </td>
- <td>Blog Links</td>
- </tr>
- <tr>
- <th colspan=3> Footer </th>
- </tr>
- </table>
- </body><HTML>

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Exercise 4

Login:

User Name:

Password:

First Name:

Last Name:

Password:

Phone Number:

Email Id:

Select Country:

Select Gender:

Male

Female

Other