Government Arts and Science College (Women), Sathankulam – 628704

Class : II B.Sc. (Computer Science)

Semester : IV

Subject : Web Technology

Topic : Unit II

Faculty : Mrs. A. Angeline Nancy Sophia M.Sc., M.Phil.,
Department of Computer Science

DEPARTMENT OF COMPUTER SCIENCE, GASC(W) SATHANKULAM.

INTRODUCTION

- Hyper Text Markup Language (HTML) describes the structure of text-based information in a document by identifying some texts such as heading, paragraph, lists etc.
- Text is marked up elements defined by tags in angled brackets.
- HTML tags are not case sensitive
- Absence of closing tag is considered as syntax error.
- HTML documents can be created in any text editor or Front Page Express.
- HTML files have either .htm or .html file name extensions

SGML (Standard Generalized Markup Language)

- It is an international standard for marked-up electronic text.
- It is a meta language.
- It does not define a markup language but provides a framework.
- Markup language is a language to represent document structure.
- HTML developed by Web community and Wireless Markup Language(WML) developed by WEBFORUM are based on SGML
- Every markup language defined by SGML is called as SGML application

Characteristics of SGML application

- Declaration
- Document Type Definition (DTD)
- Specification
- Document instances

DTD

```
<!DOCTYPE document[
<!ELEMENT document     -  -  (header, body)>
<!ELEMENT header       -  o  ((title & author) &abstract?)>
<!ELEMENT body  -  o  (block*, ack)>
<!ELEMENT title  -  o  (#PCDATA)>
<!ELEMENT authors      -  o  (#PCDATA)>
<!ELEMENT abstract     -  o  (#PCDATA)>
<!ELEMENT block -  o  ((#PCDATA | link)*)>
<!ELEMENT link  -  -  (#PCDATA)>
<!ELEMENT ack  -  o  (#PCDATA)>
<!ATTLIST link  url  CDATA  #REQUIRED>
```

DTD is defined with angled brackets and keywords.

DEPARTMENT OF COMPUTER SCIENCE, GASC(W) SATHANKULAM.

The first statement in the DTD is the declaration and second statement is the declaration of an element

Example

<document>
<header>
<title> Introduction to SGML
<authors> Ramesh and Puri
<abstract> A short description on SGML and its constructs
<body>
<block> Standard Generalized Markup Language is popularly called as SGML
<block> The International standards organization has declared it as a standard in the year 1986
<block> The information of SGML can be found at <link url="hhttp://www.foo.com"></link>
<ack> The following is acknowledged by peer authors
</document>

DTD ELEMENTS

- ELEMENT keyword is followed by
    - Name
    - Two characters that specify the minimization rules
    - A content model
- Minimization rule determines the presence of start and end tag.
    - Has a pair of characters hyphen or a letter O(omitted or optional) separated by blank spaces
    - Hyphen indicates that the tag must be present and letter o indicates omitted
- <!ELEMENT document - - (header, body)> document element should contain both start and end tag
- <!ELEMENT authors - O (#PCDATA) - parsed character data tells that the element contain any valid character data.
- <!ELEMENT body – O (block*, ack)> - occurrence indicator plus(+), question mark(?) and asterisk(*)
    - + indicates element may occur one or more times
    - ? Indicates elements may atmost one and no occurrence
    - * indicates element may either be absent or appear one or more times

DEPARTMENT OF COMPUTER SCIENCE, GASC(W) SATHANKULAM.

- Declaration contains group connectors, represented by comma, vertical bar and ampersand
- <!ELEMENT document - - (header, body)>

Both header and body should appear in the order specified in the document

ATTRIBUTES

- Attributes are used to describe information for a particular element
- <link url = "http://www.foo.com"></link>
- The declaration begins with ATTLIST keyword followed by name of the element in which attributes should be added.
    - Name of the attribute
    - Type of attribute
    - How a parser should interpret the absence of attribute

#REQUIRED – a value must be specified

#IMPLIED – value need no be given

#FIXED – fixed value must be given

Example:

<!ATTLIST link url CDATA #REQUIRED>

<!ATTLIST ack status (sent | not sent) #REQUIRED>

OUTLINE OF AN HTML DOCUMENT

HTML tag is a keyword to specify the appearance of the web page. Every tag enclosed with angled brackets and should have closing tags.

```
<html>
<head>
<!-- header part -->
<title> An example </title>
</head>
<!-- body section -->
<body>
    <h1> Hello World </h1>
</body>
</html>
```

HEAD SECTION

- Prologue

    It's a comment which tells about HTML version

    <! Doctype HTML 4.0>

DEPARTMENT OF COMPUTER SCIENCE, GASC(W) SATHANKULAM.

- Link

  Used to inform browser's previous and next document, to link the banner

  <link rel = previous href = "prev.html">

  <link rel = next href = "next.html">

  <link rel = banner href = "bann.gif">

- Base

  Declares global reference for href and target attribute

  <base href = "base_url"> or <base target="frame_name">

  href specifies the reference URL to compute relative URLs.

  target specifies default frame to which all links are targeted

- Meta

  Defines document's meta information such as keywords, expiry date, author, page generation software used.

<meta name="keywords" content="web technology, HTML, CGI">

- Script

  Contains code referenced in the body of the document

  <script language="javascript">

  ------ script code

  </script>

- Style

  Specifies style information for the document

  <style type "mime_type">

  Example:

  <style type = "text/css">

  ---- style statements

  </style>

BODY SECTION

The actual contents of the web page are placed in the body section.

<body>

Attributes:

- bgcolor: specifies background color of the web page. Bgcolor = "red"
- Link : specifies the color of unvisited link
- Alink : specifies the color of the visited link
- Vlink : specifies the visited color link
- Text : specifies the text color

  Ex. <body bgcolor="green" alink="blue" vlink="yellow">

DEPARTMENT OF COMPUTER SCIENCE, GASC(W) SATHANKULAM.

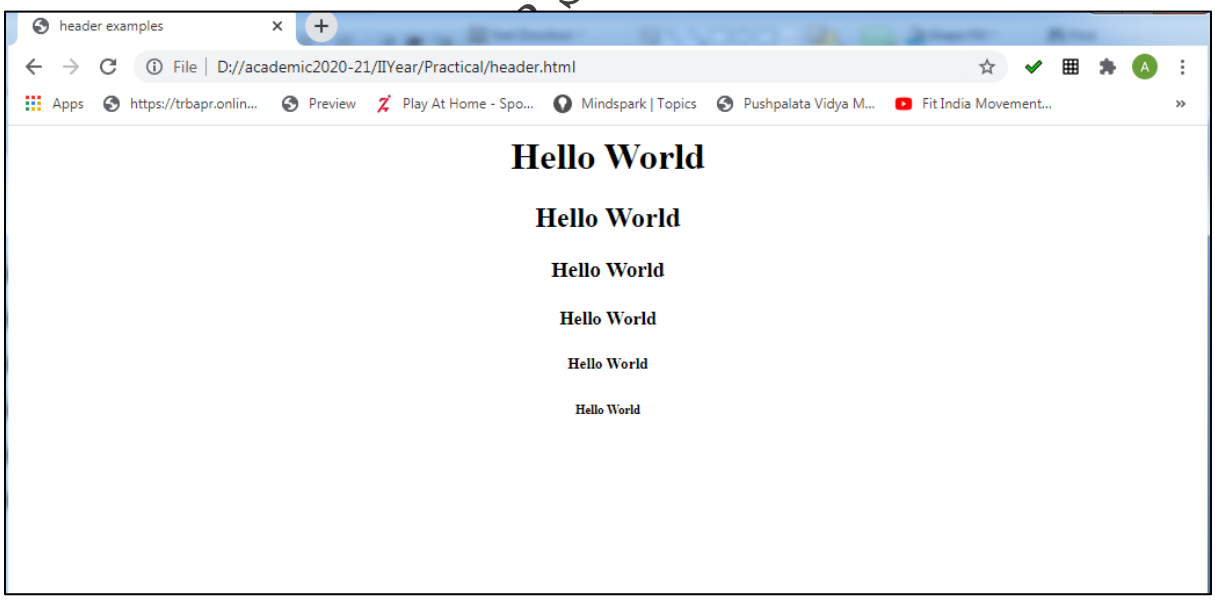
Headers

- There are six header tags <h1>, <h2>, <h3>, <h4>, <h5>, <h6>
- Header tag has align attribute with values left, center, right

```
<h2 align=center>
<html>
<head>
<title> header examples</title>
</head>
<body>
<center>
<h1> Hello World </h1>
<h2> Hello World </h2>
<h3> Hello World </h3>
<h4> Hello World </h4>
<h5> Hello World </h5>
<h6> Hello World </h6>
</body>
</html>
```

SCIENCE, GASC(W) SATHANKULAM.

Output



Text Formatting

- <b> - Bold text
- - bold text
- <i> - Italic text
- - italic text

- <small> - Smaller text
- <big> - Bigger text
- <u> - underline a text
- <strike> - strike a text
- <sub> - Subscript text
- <sup> - Superscript text
- - text styling
    - Attributes: face, color, and size

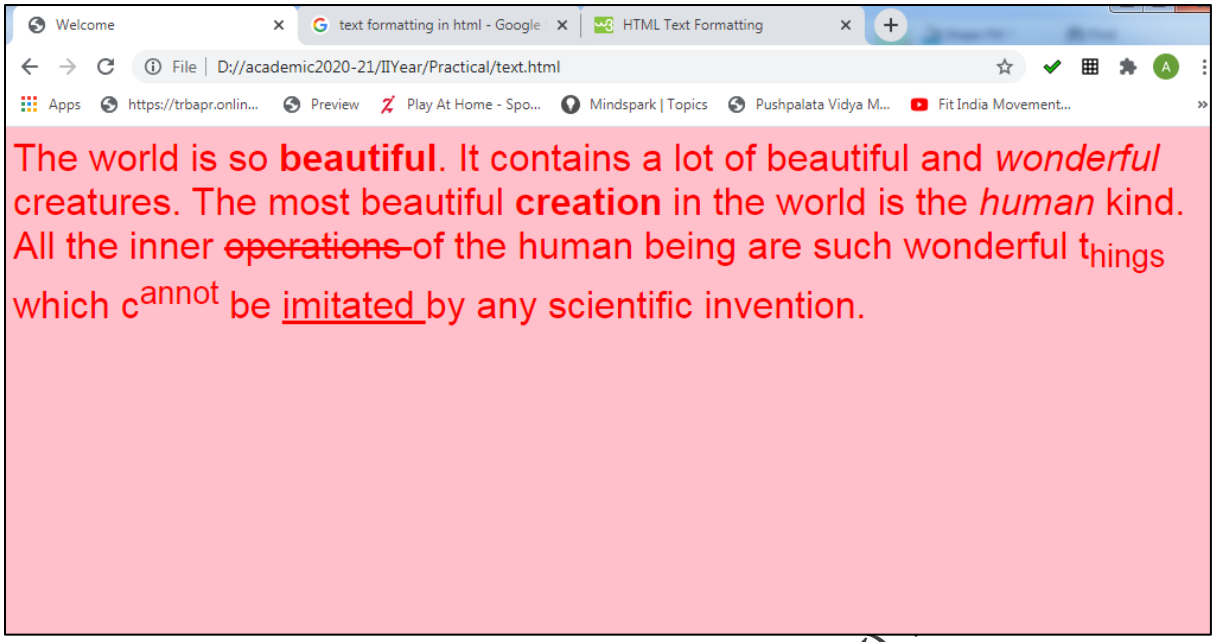
 …

color indicates the color of the text, size used to change the size of the text. To make the text larger, set size="+x" and set size="-x" to make text smaller, where x is the number of font point sizes. Face refers to the type of font.

```
<html>
<head>
<title>Welcome</title>
</head>
<body bgcolor="pink">
<p><font face="Arial" color="red" size="+3">The world is so  <b>beautiful</b>. It contains a lot of beautiful and <i>wonderful</i> creatures. The most beautiful <strong>creation </strong>in the world is the <em>human</em> kind. <br>All the inner <strike>operations </strike>of the human being are such wonderful t<sub>hings</sub> which c<sup>annot</sup>
be <u>imitated </u>by any <small>scientific</small> <big>invention<big>.</font></p>
</body>
</html>
```

Output

DEPARTMENT OF COMPUTER SCIENCE, GASC(W) SATHANKULAM.



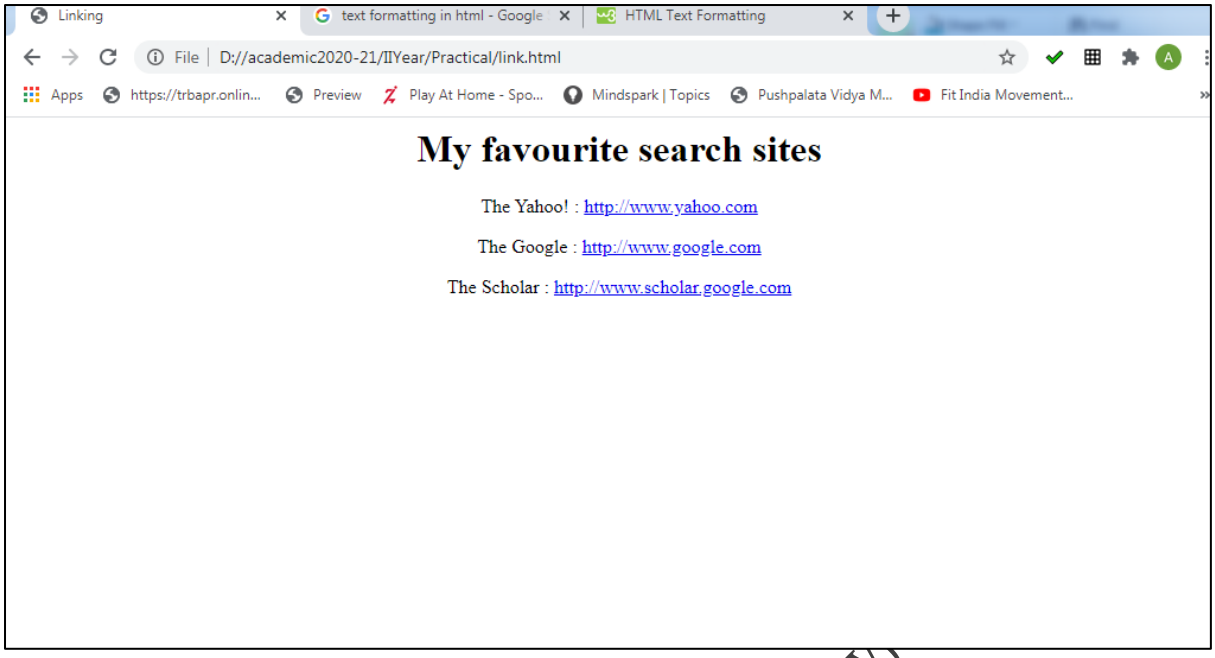
DEPARTMENT OF COMPUTER SCIENCE, GASC(W)

Linking

The links are created using anchor tag <a> … . Attribute of <a> tag is href which gives the address of the object. The href attribute of the tag tells the browser to get another html document on the web

```
<html>
<head>
<title> Linking</title>
</head>
<body>
<h1 align=center>My favourite search sites </h1>
<p align=center> The Yahoo! : <a href = "http://www.yahoo.com">
http://www.yahoo.com </a> </p>
<p align=center> The Google : <a href="http://www.google.com">
http://www.google.com</a></p>
<p align=center> The Scholar : <a href="http://www.scholar.google.com">
http://www.scholar.google.com</a></p>
</body>
</html>
```

Output



DEPARTMENT OF COMPUTER SCIENCE, GASC(W)

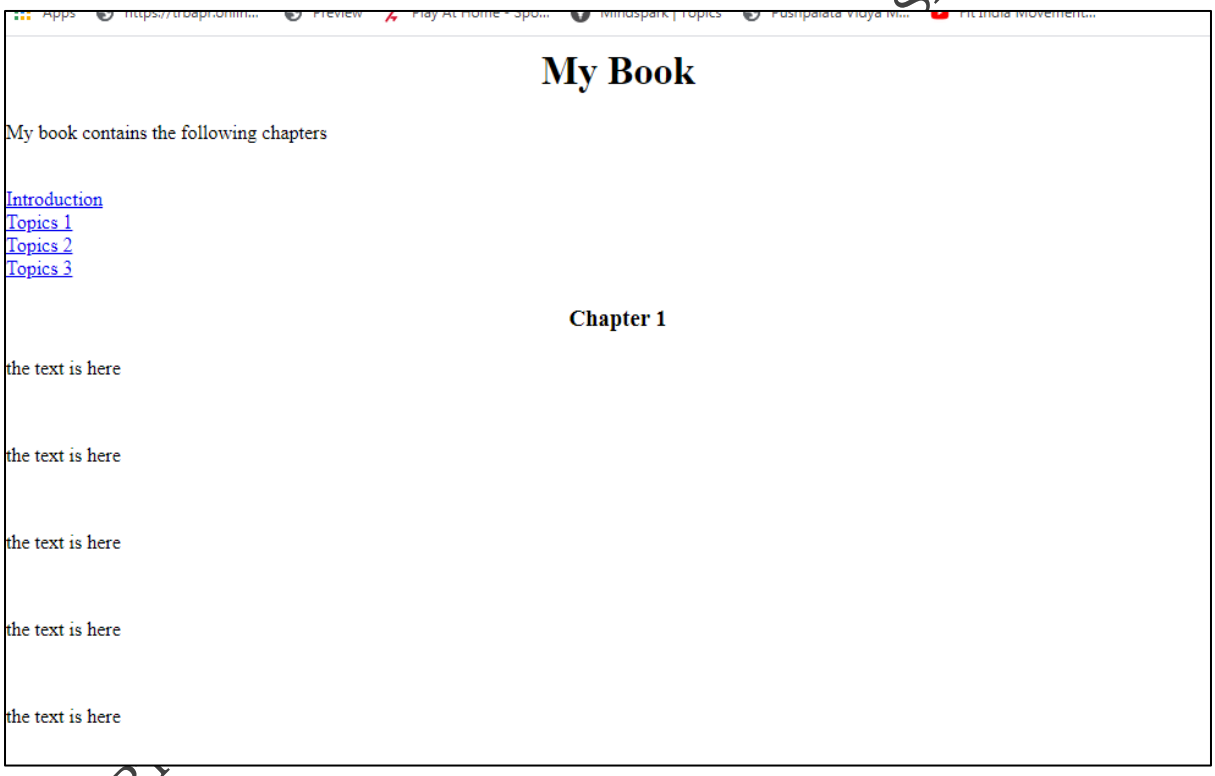
Internal Linking

- HTML has facilities to include internal links by assigning a location name to any individual point in an HTML document.
- Anchor tag is used also for internal linking
- To create name
- To refer to the location text

```
<html>
<head>
<title> Internal  Linking</title>
</head>
<body>
<h1 align=center>My Book</h1>
<p> My book contains the following chapters </p>
<br>
<a href="#chap 1"> Introduction </a> <br>
<a href="#chap 2"> Topics 1</a> <br>
<a href="#chap 3"> Topics 2</a> <br>
<a href="#chap 4"> Topics 3</a> <br>
<a name="chap 1"></a>
<h3 align=center> Chapter 1 </h3><p> the text is here </p><br><p> the text is here </p><br><p> the text is here </p><br><p> the text is here </p><br>
```

```
<a name="chap 2"></a>
<h3 align=center> Chapter 2 </h3> <p> the text is here </p><br> <p> the text is here </p><br> p> the text is here </p><br> <p> the text is here </p><br>
<a name="chap 3"></a>
<h3 align=center> Chapter 3 </h3> <p> the text is here </p><br>  <p> the text is here </p><br>  <p> the text is here </p><br>  <p> the text is here </p><br>
<a name="chap 4"></a>
<h3 align=center> Chapter 4 </h3>  <p> the text is here </p><br> <p> the text is here </p><br> <p> the text is here </p><br>
</body>
</html>
```

Output



SATHANKULAM.
DEPAR

Embedding Images

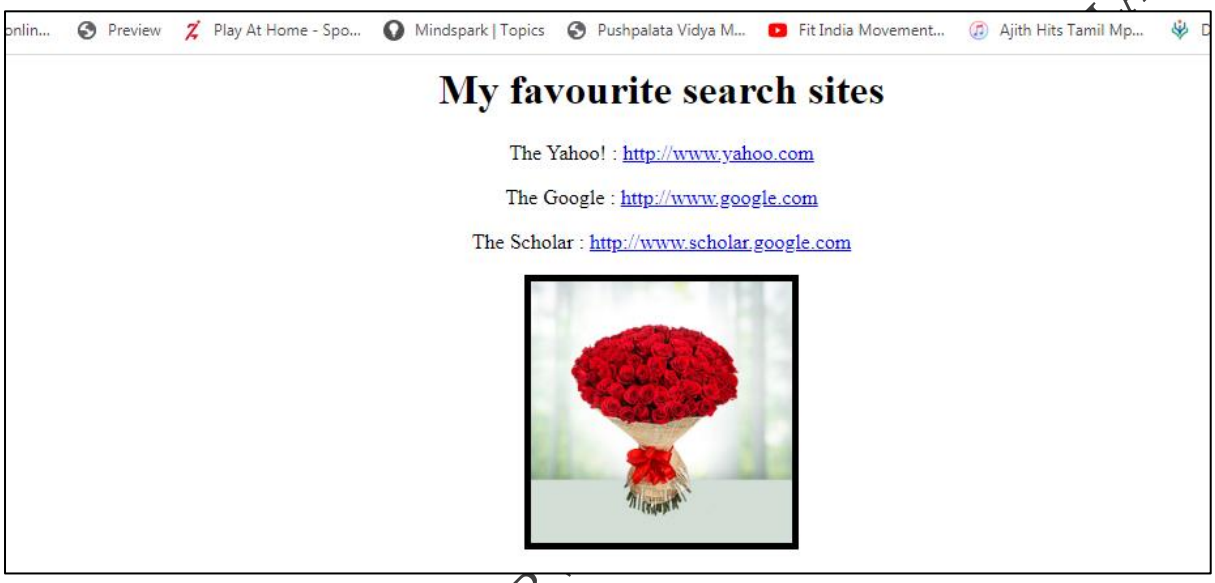
- To add image as background for the whole web page we

<body background="bg.gif">

- To include image within a web page we use <img> tag
    - Attributes of <img> tag:
        - Src – to specify the location of the image
        - Height – specify height of the image
        - Width – specify width of the image

- Border – set border for a image
- Align – alignment such as top, bottom, left, right, center
- Alt – for browsers that cannot have images

Output



- We can also create hot spots using <map> tag.

<map name="name">

.....

</map>

Ex.

<map>

<area shape="rect" coords="23,45,56,89" href="source.html">

</map>

LISTS

- Using lists we can create menus, outlines etc.
- There are three kinds of lists : unordered, ordered and definition
- Unordered Lists
  - ... tags. It should include <li> tag to list the items.
  - There are three values for type attribute: disk, circle or squares.

<html>

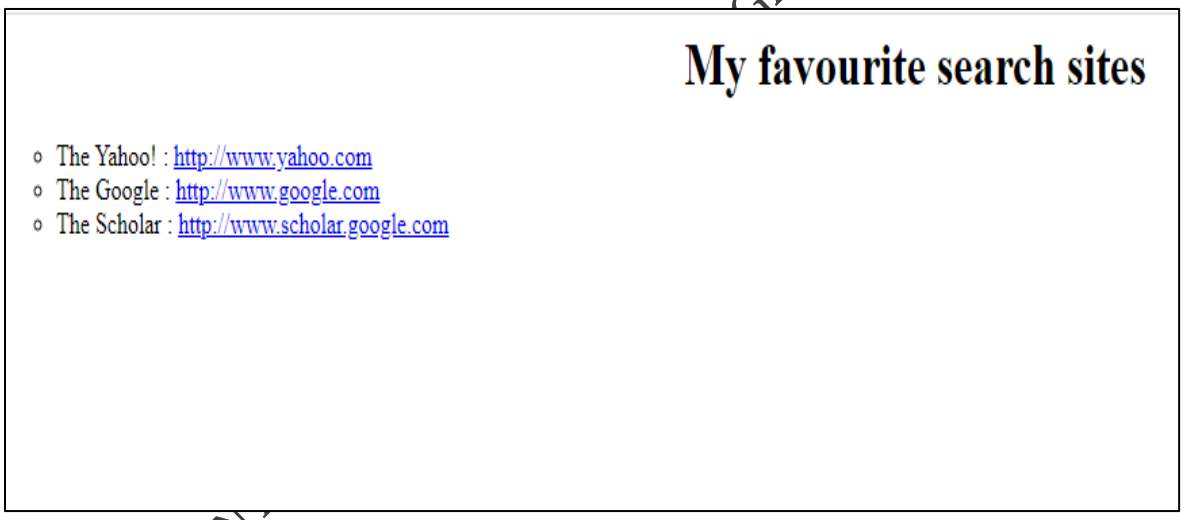
<head>

<title> Embedding images</title>

DEPARTMENT OF COMPUTER ... AM.

```
</head>
<body>
<h1 align=center>My favourite search sites </h1>
<ul type="circle">
<li>The Yahoo! : <a
href="http://www.yahoo.com">http://www.yahoo.com</a>
<li>The Google : <a
href="http://www.google.com">http://www.google.com</a>
<li>The Scholar : <a
href="http://www.scholar.google.com">http://www.scholar.google.c
om</a>
</ul>
</body>
</html>
```

Output



Ordered List

- Ordered list created using <ol> … tags
- It has attributes like start, type
- Start indicates number to start at
- Type indicates the kind of numbering like 1:numeric, a,A: lowercase and uppercase alphabetic, i,I: lowercase and uppercase roman letters
- The items should be listed using <li> tag

```
<html>
<head>
<title> Embedding images</title>
</head>
```

DEPARTMENT OF CS GASC(W) SATHANKULAM.

```
<body>
<ol type=I>
<li> This is in roman, a heading
<ol type=1>
<li>Subheadings are numeric
<li>Another numeric subheading
<ol type=a>
<li>Subheadings are alphabets
<li>Another one
<li> And another one
</ol>
<li>Another subheading
</ol>
<li>Another heading
</ol>
</body>
</html>
```

NCE, GASC(W) SATHANKULAM.

I. This is in roman, a heading
    1. Subheadings are numeric
    2. Another numeric subheading
        a. Subheadings are alphabets
        b. Another one
        c. And another one
    3. Another subheading
II. Another heading

- The numbering can be controlled with start values

```
<html>
<head>
<title> Embedding images</title>
```

```
</head>
<body>
<ol start=9>
<li> This lists start at number 9
<li> This should be 10
<li>This should be 11
<li value=1>This should be 12, but set to 11.
<li>counting ....
</ol>
</body>
</html>
```

9. This lists start at number 9
10. This should be 10
11. This should be 11
1. This should be 12, but set to 11.
2. counting ....

Definition Lists

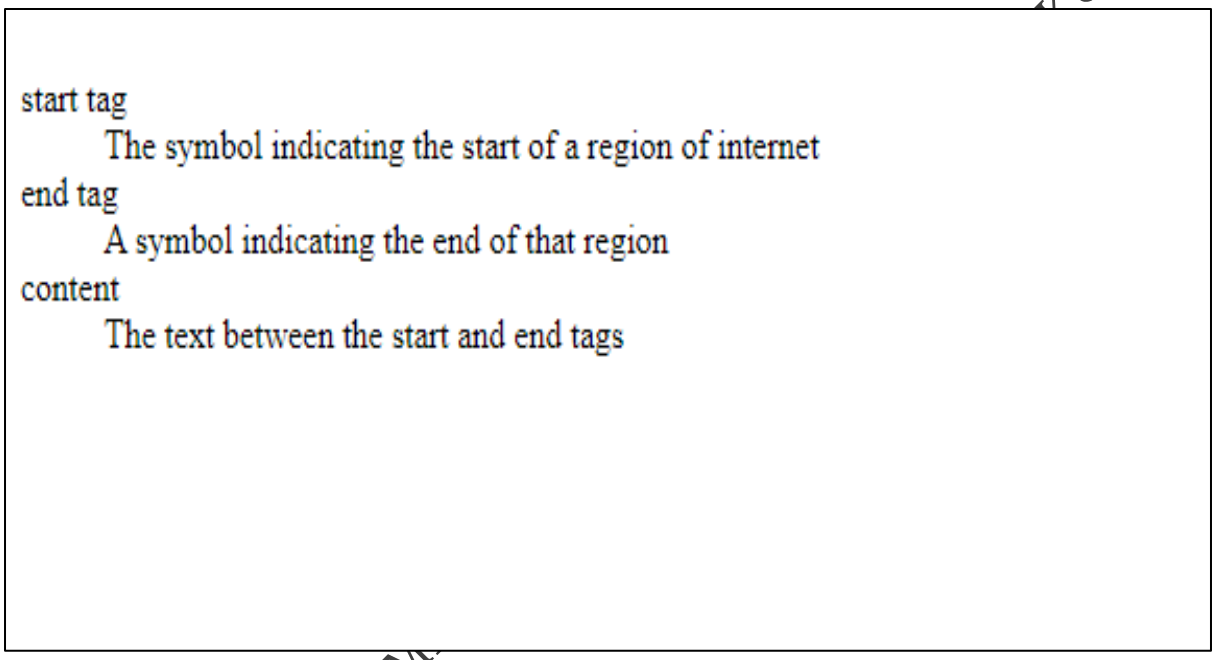
- Used for lists in which each element is labelled a word rather than a bullet or number.
- Start with <dl>...</dl> tags
- The items are included within <dt> and <dd> where <dt> include definitions term and <dd> include actual definition

```
<html>
<head>
<title> Defintion list</title>
</head>
<body>
<br>
<br>
<dl>
```

DEPARTMENT OF COM THANKULAM.

```
<dt>start tag
<dd>The symbol indicating the start of a region of internet
<dt>end tag
<dd> A symbol indicating the end of that region
<dt>content
<dd>The text between the start and end tags
</dl>
</body>
</html>
```

```
start tag
        The symbol indicating the start of a region of internet
end tag
        A symbol indicating the end of that region
content
        The text between the start and end tags
```



Tables

- <table> … </table>
    - Align – left, center, right
    - Border – make a border around the table and its cell
- <tr> … </tr> - specifies a table row
    - Align – left, center, right
- <td> … </td> - specifies a table cell
    - Align – left, center, right
- <th> … </th> - specifies table heading
    - Align – left, center, right

```
<html>
<head>
<title> Tables</title></head>
<body>
```

DEPARTMENT OF COM... ...ULAM.

```
<table border=2>
<tr>
<th align=right> Head1</th>
<th align=center> Head2</th>
<th align=left> Head3</th>
</tr>
<tr>
<td align=right> A1</td>
<td align=center> A2</td>
<td align=left> A3</td>
</tr>
<tr>
<td align=right> A4</td>
<td align=center> A5</td>
<td align=left> A6</td>
</tr>
<tr>
<td align=right> A7</td>
<td align=center> A8</td>
<td align=left> A9</td>
</tr></table></body></html>
```

Head1	Head2	Head3
A1	A2	A3
A4	A5	A6
A7	A8	A9

```
<html>
<head>
<title> Tables</title>
</head>
<body>
<table border=2>
<tr>
<td colspan=2 align=center>Report</td>
```

DEPARTMENT OF COMPUTER SCIENCE, GASC(W) SATHANKULAM.

```
</tr>
<tr>
<td rowspan=2>Football commentators</td>
<td>Good taste=5%</td>
</tr>
<tr>
<td>Bad taste=95%</td>
</tr>
<tr>
<td rowspan=2>Other</td>
<td>Good taste=90%</td>
</tr>
<tr>
<td>Bad taste=10%</td>
<td>Test</td>
</tr></table></body></html>
```

Report		
Football commentators	Good taste=5%	
	Bad taste=95%	
Other	Good taste=90%	
	Bad taste=10%	Test

FRAMES

- Framed layout is the one which the browser window is broken into regions called frames.
- <frameset> tag is a container for frames
- <frameset rows="value" cols="value">
- To divide window in horizontal use rows attribute
- To divide in vertical use cols attribute
- <frameset rows = "30%, 70%">

  This divides the window into two regions in row wise
- Frame tag is used to place different HTML documents in each frame.

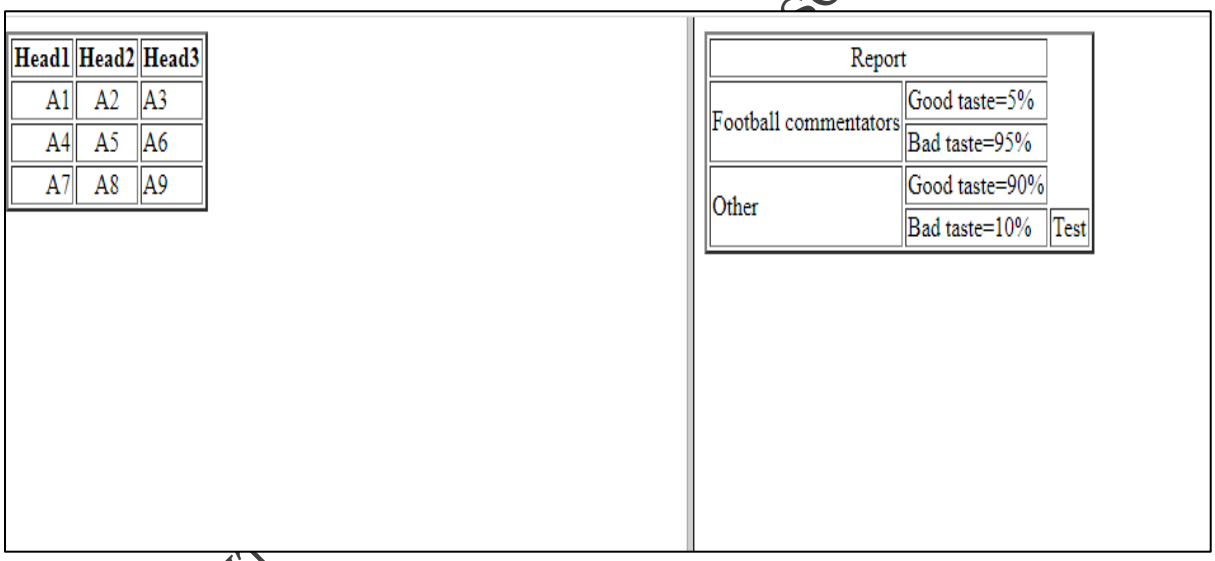
  <frame src = "URL" name="name" frameborder="0|1" scrolling="yes | no | auto">

  <noframes> - used when the browserr does not support frames.

DEPARTMENT OF CO... ...NCE, GASC(W) SATHANKULAM.

```
<html>
<head>
<title> Frames</title>
</head>
<frameset cols="40%,*">
<frame src="tab2.html">
<frame src="tab3.html">
</frameset>
<noframes>
    Provides an alternative text if the browser does not
support frames
</noframes>
</html>
```

DEPARTMENT SC(W) SATHANKULAM.



Head1	Head2	Head3
A1	A2	A3
A4	A5	A6
A7	A8	A9

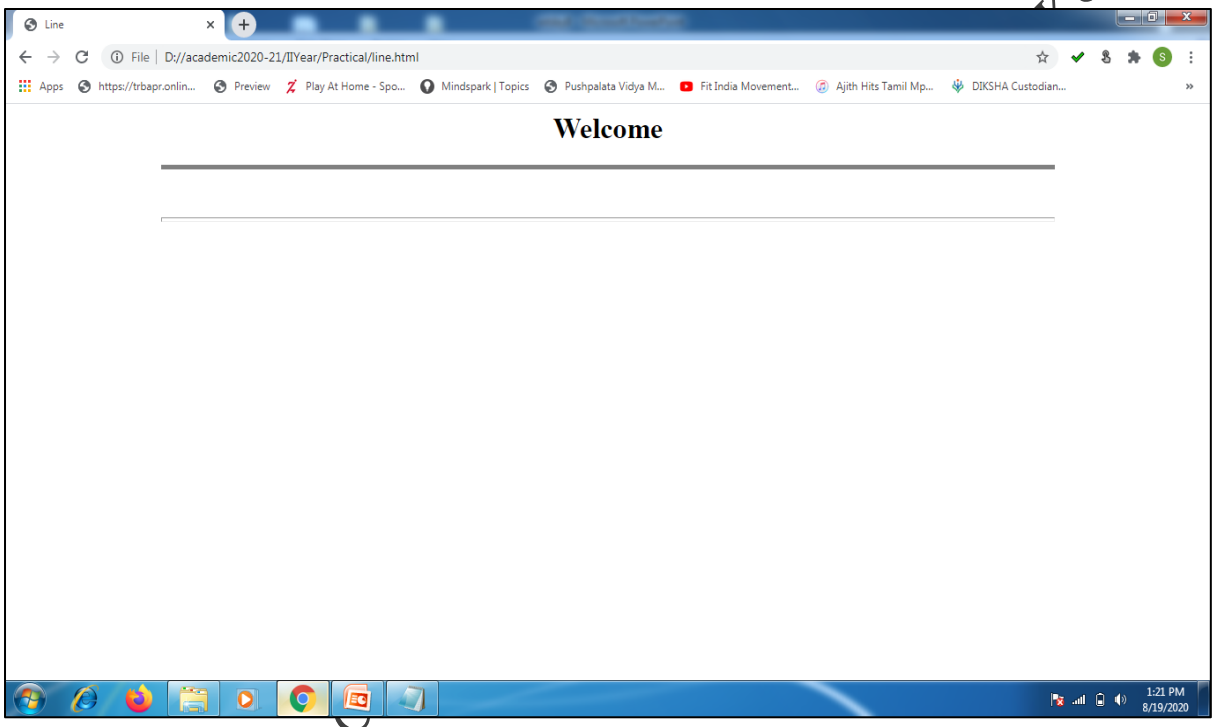
Report		
Football commentators	Good taste=5%	
	Bad taste=95%	
Other	Good taste=90%	
	Bad taste=10%	Test

Horizontal rule

- To draw a line in the web page we use <hr> tag.
- Attributes:
    - Width – to specify the width of the line
    - Size – to specify height of the line
    - Noshade – eliminates default shading effect and display with solid color bar
    - Align – align the line right, left or center

```
<html>
<head>
<title>Line</title>
```

```
</head>
<body>
<h1 align=center> Welcome</h1>
<hr noshade width="75%" size=5 align=center>
<br>
<br>
<hr width="75%" size=5 align=center>
</body>
</html>
```



FORMS

We can create interactive content using form tags. These tags are used to collect information from the user and then a script or program on a web server uses that information to compute response to the form submission.

Syntax:

<form action="URL of processing script" method="get|post" target="frame_name"> … </form>

method is used to send the form data to the web server. The default value is get which appends data at the end of the URL.

if the method is post then the data is to be stored in the web server as a separate transaction.

Form controls

DEPARTMENT OF C ZULAM.

- Text, password or hidden fields
- Check boxes
- Radio buttons
- Image based buttons
- Scripted buttons
- Submit or reset buttons

Syntax:

<input type="text | passwd" name="name" value="default_val" size="field size" maxlength="max_in_length" DISABLED READONLY>

<input type="hidden" name="fieldname" value="default_val">

<input type="checkbox" name="fieldname" CHECKED DISABLED>

<input type="radio" name="fieldname" CHECKED DISABLED>

<input type="button" name="fieldname" value="button_label" onclick="processing script" DISABLED>

<input type="submit | reset" name="fieldname" value="button_label" onclick="processing script" DISABLED>

- Select

To set up a list of choices from which an user can select one or many.

<select name="name" size="visible_rows" MULTIPLE DISABLED accesskey="shortcut access key">

……

</select>

- Text Area

To set up multiple line input text window

<textarea name="name" rows="no of rows" cols="no of cols"DISABLED READONLY accesskey="shortcut-key">

…..

</textarea>

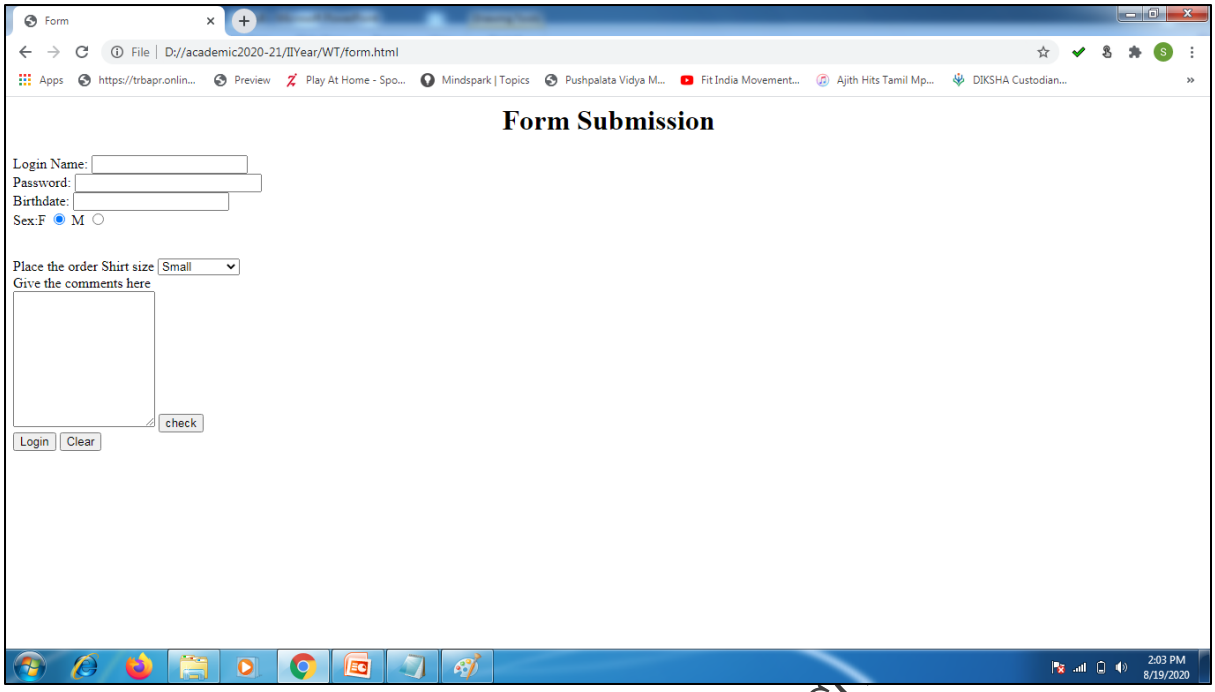
Example

```
<html>
<head>
<title> Form</title>
</head>
<body>
<h1 align=center>Form Submission</h1>
```

DEPARTMENT OF COMPUTER SCIENCE, GASC(W) SATHANKULAM.

```
<form action="/cgi-bin/submit.cgi" method="post">
Login Name: <input type="text" name="login" size=20>
<br>
Password: <input type="passwd" name="pass" size=25>
<br>
Birthdate: <input type="text" name="date" size=20>
<br>
Sex:F  <input type="radio" name="sex" value="F" CHECKED>
M <input type="radio" name="sex" value="M">
<br><br>
<p> Place the order
Shirt size
<select name="size">
<option>Small</option>
<option>Medium</option>
<option>Large</option>
<option>Extra Large</option>
</select>
<br>
Give the comments here
<br>
<textarea name="comments" rows=10 cols=20>
</textarea>
<input type="button" value="check" onclick="validate()">
<br>
<input type="submit" value="Login" onclick="submit()">
<input type="reset" value="Clear" onclick="clear()">
</form></body></html>
```

DEPARTMENT OF COMPUTER SCIENCE, GASC(W) SATHANKULAM.



DEPARTMENT OF COMPUTER SCIENCE, GASC