

UNIT 4

WEB PAGE DESIGN

Structure

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4.0 INTRODUCTION

This unit explains the process of design of web pages. Web pages can be created by using HTML. However, to create pages with rich features, you need to use advanced DHTML, XML etc. In this unit, we confine to the creation of web pages using HTML. Using HTML, it is also possible to add images etc. to a web page. A web page can be frame based. A web page can also have forms as part of it which can be designed using HTML. JavaScript and VBScript facilitate validation. Though JavaScript and VB Script have several features which perform more tasks apart from validation, we do not dwell into them as they are beyond the scope of the unit. One of the tools that can be used to develop web pages is Microsoft Expression Web. Also, explained in this unit are some scripting tools in brief.

4.1 OBJECTIVES

After studying this unit, you should be able to

- Know about basic HTML
- Create simple web pages using HTML
- Insert images into web pages
- Create simple frame based web pages
- Design forms
- Know the features of Microsoft Expression Web
- Know about various scripting tools

4.2 Basics web page design using HTML

HTML is a markup language used to create hyper texts that are platform independent. Markup feature can be links to other web pages, e-mail, multimedia, documents, databases etc

Structure of HTML

A html file consists of two sections

- Head
- Body

Tags are used in to identify each sections like head, body, title, paragraphs, tables, images, etc.,

Syntax of HTML tags:

`<tag name> Text Contents </tag name>`

Head begins with `<Head>` tag and ends with `</head>` tag.

Title begins with `<Title>` tag and ends with `</Title>`

Body begins with `<body>` tag and ends with `</body>`

Heading tags start form `<H1>` to `<H6>` and ends with `</H1>` to `</H6>`

The names of tags are not case sensitive.

Syntax of HTML file

`<! Comment for html file >`

`<head>`

`<Title> This text will appear on the window title </Title>`

`<Body>`

Html statement 1

Html statement 2

Html statement 3

.....

Html statement n

`</Body>`

`</head>`

Each statement can be of type as follows:

- Headings
- Paragraph text
- Table
- Anchor to some other page, image, audio/video file, etc.,
- Multimedia (audio, video, image, animated image)
- Forms
- Frames

4.2.1 Method to create and view the web pages in browser

Writing HTML file

HTML files are written in any editors like edit (at command prompt), Notepad, WordPad or any editor. Once the contents of html are written, the file should be saved as filename.html.

Viewing the contents of HTML file

The output of html file is viewed using Internet Explorer, Mozilla, and Opera, Mosaic or any internet browsing tools. Steps to see the output of html file:

1. Go to File option and select the open option
2. Browse the html file and select html file
3. Click on OK to see the output of html file in internet explorer or any other browsers.

A web page contents has headings, paragraphs, tables, images, frames, etc. The headings in html are defined from H1 to H6 with the size of heading in H1 large and size of heading in H6 small. The following example gives an illustration of H1 to H6.

Example 1: Write a html file with title “Welcome to HTML World”, display headings H1 to H6

Solution: **HTML code**

1. Using Notepad, type the following:

```
<head>
<Title> Welcome to HTML </Title>
<Body>
<H1> The size of HTML heading is H1 <h1>
<H2> The size of HTML heading is H2 <h2>
<H3> The size of HTML heading is H3 <h3>
<H4> The size of HTML heading is H4 <h4>
<H5> The size of HTML heading is H5 <h5>
<H6> The size of HTML heading is H6 <h6>
</Body>
</head>
```

2. Save the file with webpage1.html (or any name with .html extension)
3. Click Internet explorer or any browser. Go to File option and Open the file webpage1.html (refer to figure 4.1, figure 4.2, figure 4.3, figure 4.4)

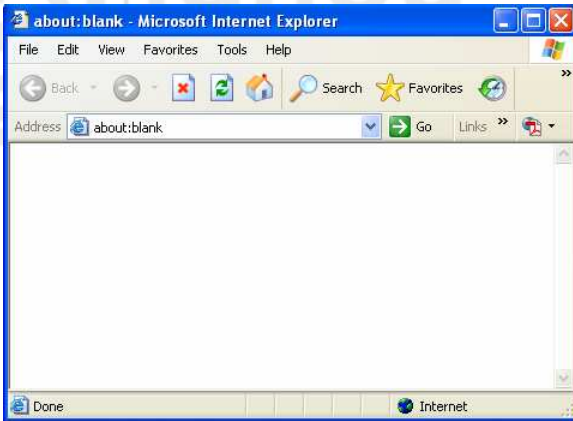


Figure 4.1



Figure 4.2

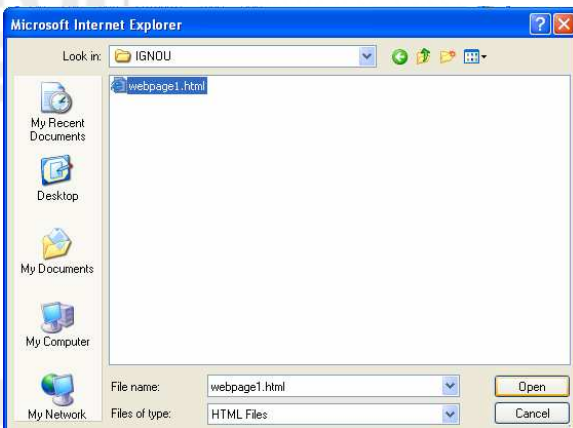


Figure 4.3

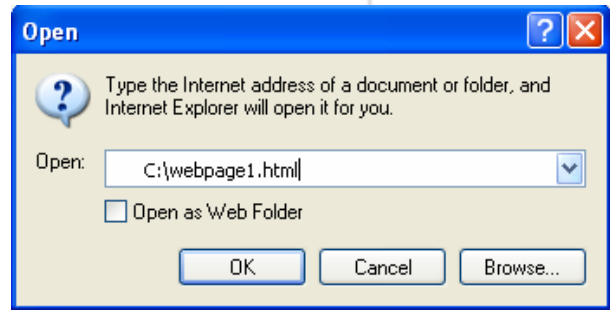


Figure 4.4

4. Click OK and the output appears as shown in figure 4.5.

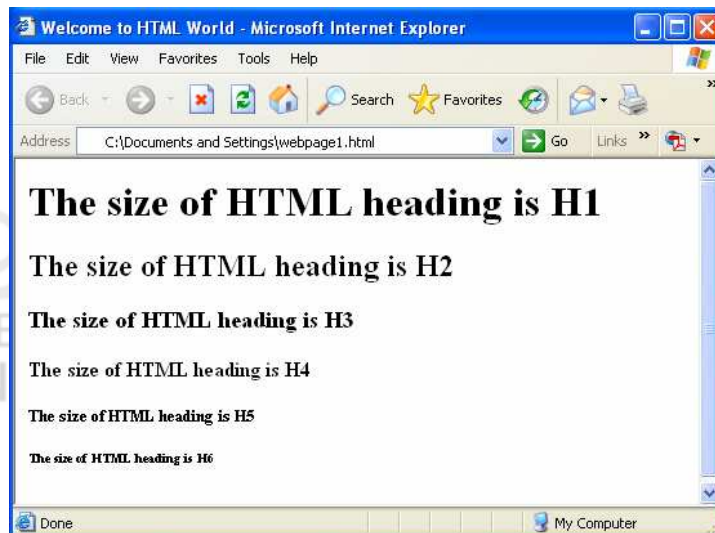


Figure 4.5

4.2.2 HTML BASIC TAGS

The following are Paragraph and Line break tags.

Paragraph tag `<p>` is used to start a new paragraph or to end a sentence and start a new paragraph. For paragraph tag `</p>` is not mandatory. Line break `
` is used to break a line i.e have empty/blank line

Example 2. Write a html file to illustrate paragraphs and breaks

Solution: HTML code

The sequence of steps is same as example 1. The contents of html file are

```
<head>
<Title> Welcome to HTML World </Title>
<Body> <h3> About Web page! </h3>
<h4> <p>
```

A collection of related Web pages is called a Web Site. Web sites are housed on Web servers, host computers that store thousands of web pages. Copy a page onto the server is called as posting or uploading or publishing. Generally it is called uploading. Copy a page from server to the user's computer is called downloading. `
` `
` Posting is generally used with newsgroups internet.

```
<br>
```

```
<p> Web pages are used to distribute news, travel information, banking, education, etc.
```

```
</h4> </Body> </head>
```

The output is shown in figure 4.6.

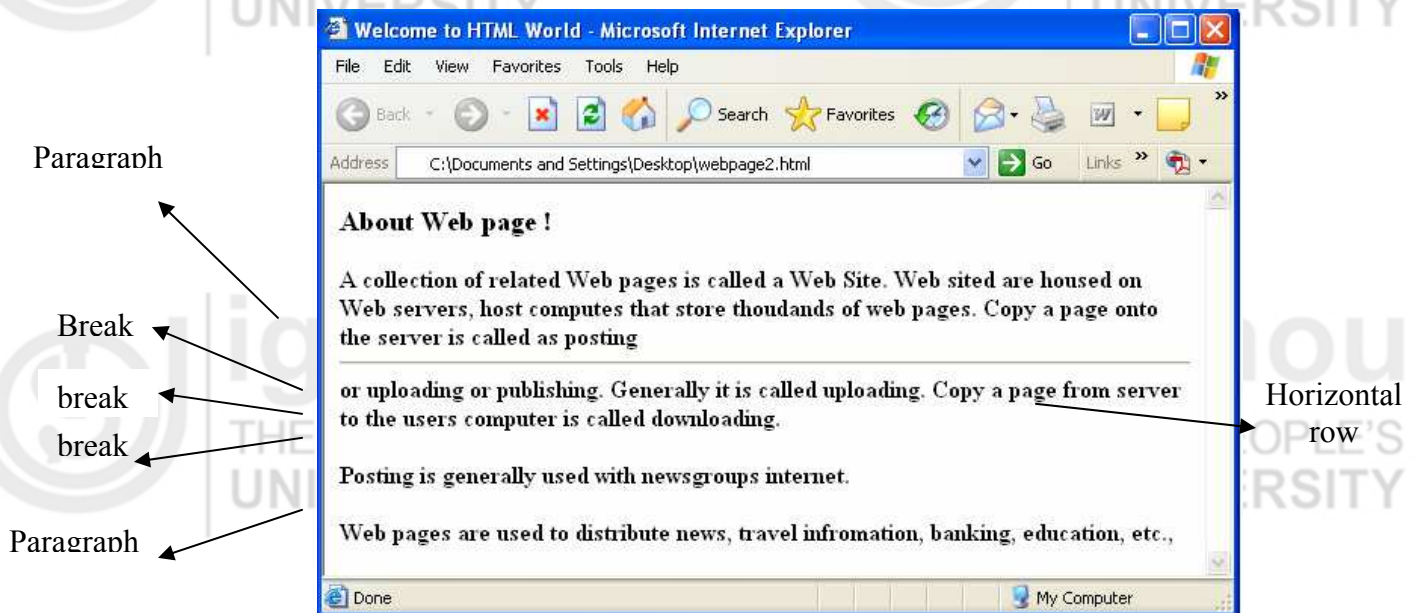
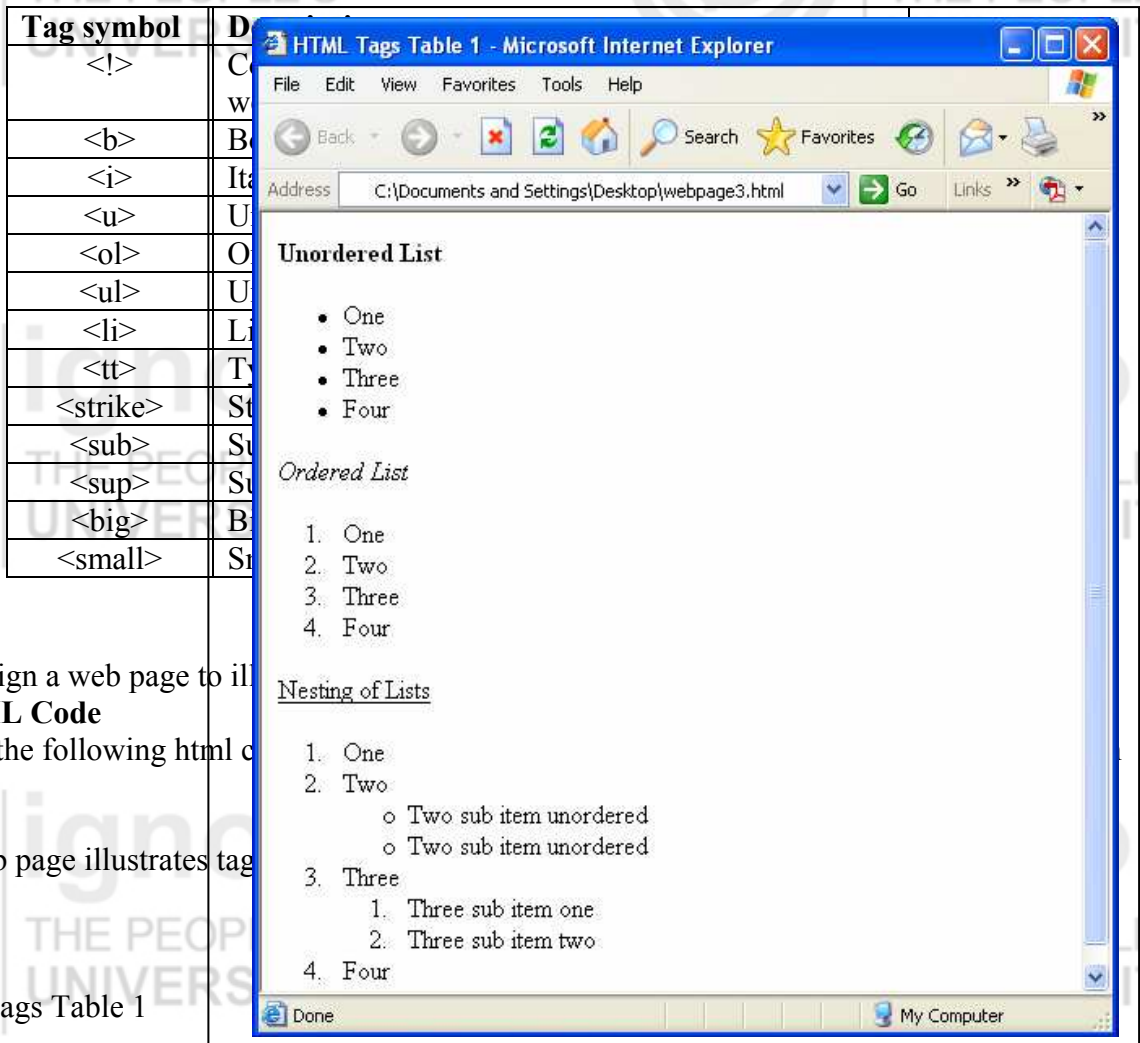


Figure 4.6

The common HTML tags for text formatting are shown in table 4.1.



Example 3. Design a web page to illustrate the use of HTML tags for text formatting.

Solution: HTML Code

Using Notepad, the following HTML code is used to create the web page shown in figure 4.7.

<!-- This HTML web page illustrates the use of HTML tags for text formatting -->

<head>

<Title>

HTML Tags Table 1

</Title>

<Body>

 Unordered List

 One

 Two

 Three

 Four

<i> Ordered List </i>

 One

 Two

 Three

 Four

<!-- Nesting of List -->

Figure 4.7

```

<u> Nesting of Lists </u>
<ol>
  <li> One
  <li> Two
</ol>
<ul>
  <li> Two sub item unordered
  <li> Two sub item unordered
</ul>
<li> Three
<ol>
  <li> Three sub item one
  <li> Three sub item two
</ol>
<li> Four
</ol>
</Body>
</head>

```

Anchor tag is demonstrated in the following example.

In web pages often some words needs further explanation, and anchor tag can be used to link current web page to other web page or document or short notes or multimedia application. Wherever there is an anchor tag, hand symbol appears and when the user clicks on it, the corresponding page is opened.

Example 4: Write html file using anchor tags

Solution: HTML Code

```

<head>
<Title> Anchor Tag </Title>
<Body>
In web pages often some words needs further explanation, and anchor tag can be used to link <br>
current web page to other web page or document or short notes or multimedia application. <br>
Wherever there is an anchor tag, hand symbol appears and when the user clicks on it, the corresponding
page is opened.
<br> <br> The following anchor which is underlined gives
<a href = "webpage3.html"> Ordered and Unordered List </a> illustration
</Body>
</head>

```

The output is shown in figure 4.8.

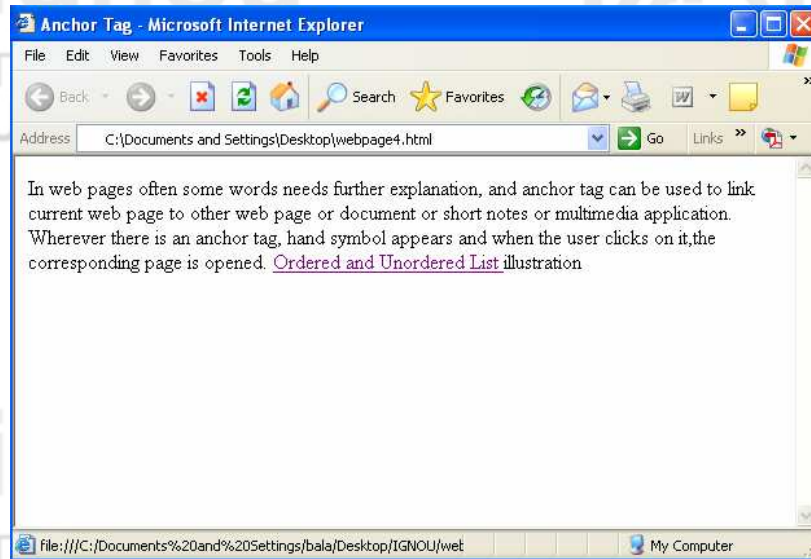


Figure 4.8

Text can be aligned as shown in following tags:

```
<h2 align=center> This is centered text </h2>
<h2 align=justify> This is justified text </h2>
<h2 align=left> This is left text </h2>
<h2 align=right> This is right text </h2>
```

Handling tables

Table is used to display data in row and column order. Splitting of rows and columns is also supported in html. Various types of tags in table handling are as given in table 4.2.

Table Tag	Description
<table border>	Table border with width, cell padding and cell spacing attributes
<tr>	Table row with column and row span
<td>	Table descriptor with align, row and column span attribute

Table 4.2

Example 6: Write code in HTML to illustrate table tags.

Solution: HTML Code

```
<html>
<head>
<Title> Table Example using HTML </Title>
</head>
<Body>
<table border=3> <caption> <Big> List of Car Prices </caption>

<tr> <th colspan=2> <b> Maruthi
```



```

<th colspan=2> Hyundai
<th colspan=2> Tata </b>
<tr> <th> Model <th> Price (Rs) <th> Model
<th> Price (Rs) <th> Model <th> Price (Rs)

<tr> <td> Classic 800 AC <td> 3,00,000
<td> Sonata Gold <td> 16,50,000
<td> Indica <td> 3,20,000

<tr> <td> Esteem AC <td> 5,00,000
<td> Santro <td> 4,00,000
<td> Indigo <td> 4,50,000

<tr> <td> Versa AC <td> 4,50,000
<td> Getz <td> 3,50,000
<td> Indigo Max <td> 6,50,000

</Body>
</html>

```

The output is as shown in figure 4.9.



Figure 4.9

4.2.3 Image tag

Attributes of image are src, height, width, align, alt

Align can be set as left, right, middle, top, text top, abs middle, baseline or bottom

Example 5: Display image bluehill.jpg with width=150, height=250, hspace=25, vspace=25

Solution: HTML code

```

<! To display image >

<html>
<head> <Title> Blue Hills </Title>
</head>
<Body> <h1> Blue Hills </h1> <hr size = 4>
 </img>
<br clear=left>

```

Blue hills provide a good healthy and environment and close to nature. It is right in herbal plants useful for all species of life.

```

<hr size=2> <h1> Bordered Sunset </h1>
 </img>
    Sun rise wishes all of a good and happy day.
</Body>
</html>

```

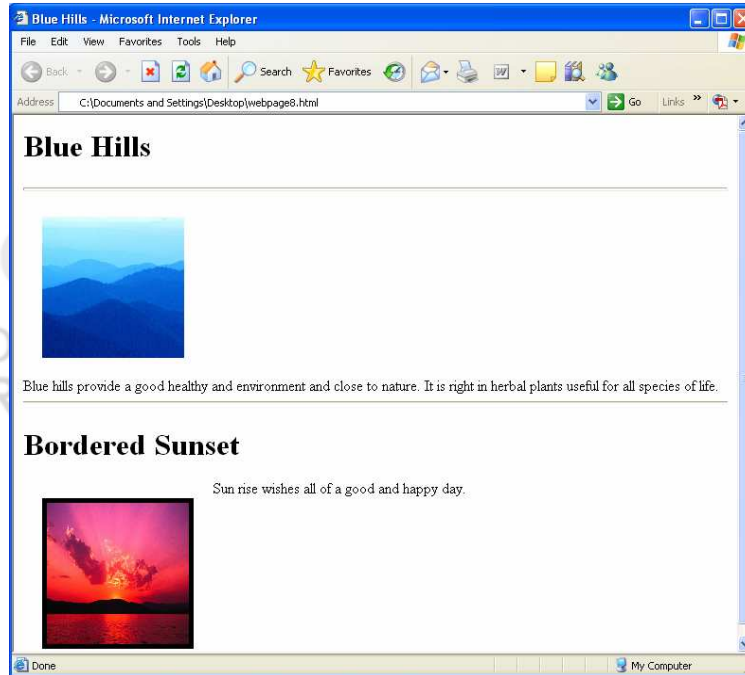


Figure 4.10

The output is depicted in figure 4.10.

Animated gif images can be downloaded from internet with .gif as extension.

Syntax to insert animated Gif in html file:

```



```

To insert anchor with animated gif the following syntax can be followed:

```

<a href="Animation Concept">  </a>

```

Syntax to insert movies in html file:

```

<embed src = "movie.mov" width = "w" height= "h"></embed>

```

Syntax to insert sound in html file:

```

<embed src = "sound.mp3" autoplay=true></embed>

```

4.2.4 Frames

Window is called a container and can be divided in number of areas and each area is called a frame. Each frame has a name, can have html code and size can dynamically once the window area gets modified.

The following HTML code divides frame as two columns of size 50% and 50%

```
<frameset cols="50%,50%">  
-----  
-----  
</frameset>
```

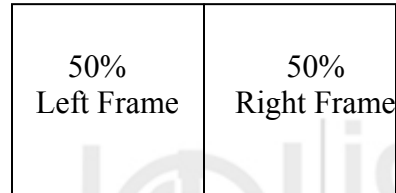


Figure 4.11

The following HTML code divides frame as two columns of size 50% and 50% and right frame to further 40% and 60% as shown in figure 4.12.

```
<frameset cols="50%,50%">  
-----  
  <frameset rows="40%, 60%">  
    -----  
    -----  
  </frameset>  
</frameset>
```

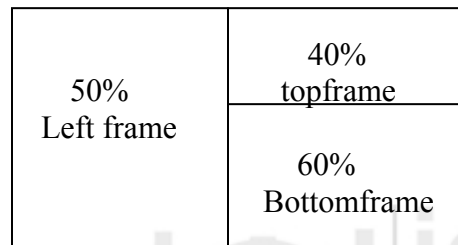


Figure 4.12

Example 6. Write html file to display the frame shown above

Solution: HTML Code

This example has main html file as cc.html and it has creates three frames and first frame contains html from c1.html, second frame contains html code from c2.html and third frame contains html from c3.html.

The output is shown in figure 4.13.

cc.html

```
<html>  
<head>  
  <title> Frame Illustration </title>  
</head>  
<frameset cols = "50%,50%">  
  <frame name = "leftframe" src="c1.html">  
    <frameset rows= "50%, 50%">  
      <frame name = "topframe" src="c2.html">  
      <frame name = "bottomframe" src="c3.html">  
    </frameset>  
</frameset>
```

```
</frameset>
</html>
```

c1.html

```
<html>
<head>
  <title> Contents </title>
</head>
<body>
  <h1> Contents </h1>
  Travelling by car is easy and comfortable
</body>
</html>
```

c2.html

```
<html>
<head>
  <title> Welcome </title>
</head>
<body>
  <h1> Welcome </h1>
  Select any text and you will be happy
</body>
</html>
```

c3.html

```
<html>
<head>
  <title> Frame World </title>
</head>
<body>
  <h1> Frames </h1>
  This example has THREE frames
</body>
</html>
```

4.2.5 Forms

Forms help to develop interactive applications. Dynamic html supports active interactive web applications. Forms can have the following features

- Text with paragraphs
- Drop down list
- Dialog box
- Check box, radio button
- Buttons
- Text Box

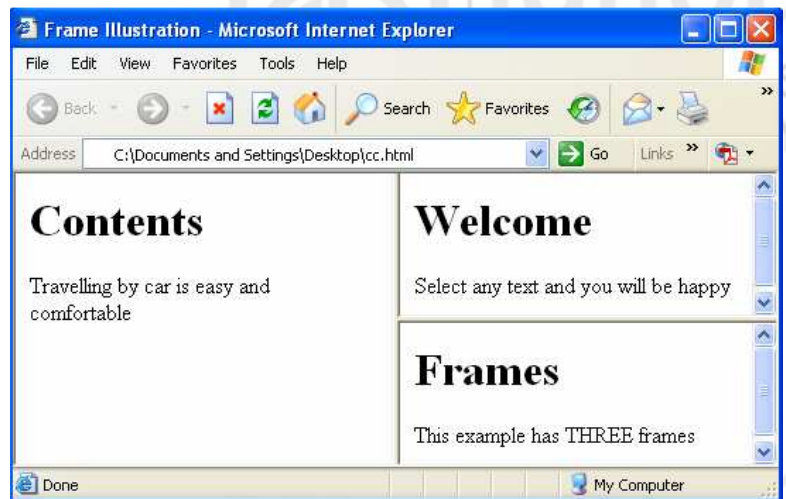


Figure 4.13

- Text area

Example 7: Design a form with all the above features

Solution: HTML code

```
<! HTML Script for forms >
<html>
<head> <title>Form Example</title> </head>
<body>
  <h2 align=center>Super Market Details</h2>
  <br> <hr size=2> Name of Item <input type="text" name="name">
  <br> <br>
  List of Items
  <select name="lstitems" hspace="10">
  <option> Household Items
  <option> Furniture
  <option> Electronic
  <option> Food Bazar
  <option> Gifts
  </select>
  <br> <br>
  Gift Items
  <br>
  <input type="radio" name="gift"> Sceneries
  <input type="radio" name="gift"> Crockery
  <input type="radio" name="gift"> Painting
  <br> <br>
  Select any one of the following
  <br>
  <input type="checkbox"
    name="g1"> Nokia Mobile
  <input type="checkbox"
    name="g2"> Samsung Mobile

  <input type="checkbox" name="g3"> Motorola Mobile
  <br> <br>
  Type message you have to give
  <br>
  <textarea name="txtarea" rows="5" columns="50">
  </textarea>
  <br> <br>
  <input type="submit" value="OK">
  <input type="Reset" value="Cancel">
  </body>
</html>
```

The name of HTML file is form1.html. The output is shown in figure 4.14.

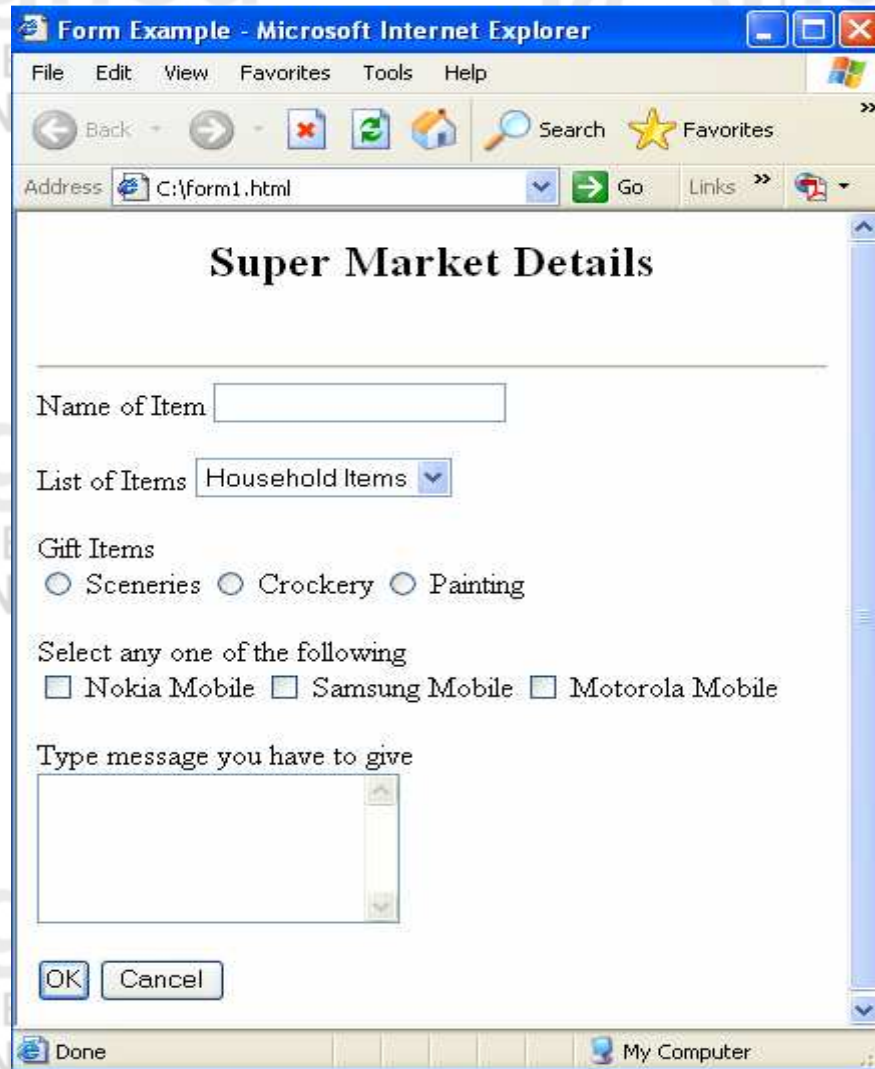


Figure 4.14

4.3 JavaScript and VBScript

In this section, we describe JavaScript and VBScript.

4.3.1 JavaScript

The Internet Explorer Web browser contains a *JavaScript interpreter*, which processes the commands written in JavaScript.

Using JavaScript we can design web application much efficiently, and JavaScript is a scripting language and can call java applets and java components.

This lab manual gives an idea of JavaScript using function in script file.

The following section gives two examples using JavaScript. JavaScript consists a set of functions and data variable (if needed in the script).

Syntax of JavaScript

```
<script language=JavaScript>  
// comments of JavaScript  
    javascript statement 1;  
    javascript statement 2;  
    .....  
    javascript statement n;  
</script>  
<! Non JavaScript content>
```

Example 8: To display string Welcome to JavaScript

Solution: JavaScript code

```
<html>  
<head> <title>    JavaScript Example 1</title>  
</head>  
<body>  
<script language=JavaScript>  
    document.writeln("<h2>Welcome to JavaScript </h2>" );  
  
</script>  
</body>  
</html>
```

The output is as shown in figure 4.15.



Figure 4.15

Various functions that can be used JavaScript

To display alert messages

```
alert('JavaScript Message Box Comes');
```

To prompt the user for inputs

```
window.prompt("Enter first integer","");
```


4.3.2 VBScript

VBScript is fully compatible to internet explorer. Using VBScript, user can design buttons, menus, dialog boxes and interactive inputs. Awareness of Visual basic programming language can enhance VBScript features.

Example 9: Give an illustration of VBScript to display message box.

Solution: VBScript

```
<html>
<head> <title> VBScript Illustration </title>
</head>
<body>
  <script language=vbscript>
    MsgBox "Hello VBScript"
  </script>
</body>
</html>
```

The output is shown in figure 4.16.



Figure 4.16

4.4 FEATURES OF MICROSOFT EXPRESSION WEB

Using Microsoft Expression Web, it is possible to design websites which are having rich features. It is possible to import Adobe Photoshop files which will help in the creation of graphics for the website. It is possible to design websites which are compliant to existing standards using Microsoft Expression Web. With this tool, the website designer can separate the design aspect from content with cascading style sheets. It possesses drag and drop feature. Also, hierarchy of styles can be visualized. It becomes very easy to work with CSS (Cascading Style Sheets) using this tool. It provides templates catering to various categories which can be used to design websites. The power of ASP.net can be harnessed.

4.5 WEB SITE DESIGN SCRIPTING TOOLS

Web server responds to client requests and provides resources (answers to queries etc.). Web server maps URL to a file on server using HTTP platform independent protocols. Web servers also map various types of application protocols of TCP/IP protocol suite.

Various types of web servers are:

- Microsoft Internet Information Services (IIS)
- Microsoft Personal Web Server (PWS)
- Apache Web Server (Free open source)

ASP (Active Server Pages)

Interactive Web pages are created with both client and server scripting. Active Server Pages (ASP), a server-side technology that dynamically builds documents in response to client requests. Various data base queries are supported using ASP features.

Perl (Practical Extraction and Report Language)

A High-level programming tool to monitor large software projects and generate reports.

CGI (Common Gateway Interface)

A Standard protocol where users can interact with applications on Web servers. CGI provides a way for clients to interface indirectly with applications on the Web server.

Python

A cross-platform, object-oriented language that can be used to write large-scale Internet search engines, small administration scripts, GUI applications, CGI scripts, Tcl/Tk ,OpenGL, etc.,

PHP (Pre Hypertext Processor)

Pre Hypertext Processor is mostly used for server side scripting languages for creating dynamic Web pages. PHP also provides support for a large number of databases.

Session-1 (3 hours)

Question 1: Study the Microsoft Expression Web 2 quick start guide at <http://expression.microsoft.com/en-us/cc184877.aspx> .

For the following questions 2 to 5, use Microsoft Expression Web 2 preferably.

Question 2: Design a web page which shows your resume.

Question 2: Design a web page that shows a table consisting of marks of a student in six subjects. The table should also show the aggregate marks of the student.

Question 3: Using JavaScript and VBScript, write code to add and multiply two numbers.

Question 4: Design web pages that display images of reputed Computer scientists.

Question 5: Design web pages that includes a link to a video clip.

4.6 Summary

This section gives basic idea of html and functionality of various types of tags. Paragraph tags, table tags, image and multimedia tags etc., are explained briefly. Various examples are given and their respective screen outputs are given. Forms and frames play an important role for further development of a web page. To add the feature of dynamic content VBScript and JavaScript can be an added feature. Basic idea of this script is given. To design a web page Front Page tool can be used as ease and design process of web page becomes much simpler. For complete web

applications, web servers are needed. IIS, PWS and Apache Server can be used. Web designing tools like Perl, PHP, ASP, CGI, and Python enhance the features of web site design

4.7 Further Readings

- Web Design Complete Reference by Thomas A. Powell; McGraw Hill; 2002.
- Internet & World Wide Web:How to Program by Paul J.Deitel and Dr.Harvey M.Deitel; Prentice Hall; 2007.
- Microsoft Expression Web 2 Step by Step by Chris Leeds; Microsoft Press; 2008
- Sams Teach Yourself Microsoft Expression Web 2 in 24 hours by Morten Rand-Hendriksen; Sams; 2008.
- Microsoft Expression Web for Dummies by Linda Hefferman; For Dummies; 2007
- <http://w3schools.com/html>
- <http://www.html.net>
- <http://msdn.microsoft.com>
- <http://www.microsoft.com/expression>
- For Microsoft Expression Web training videos, browse to <http://expression.microsoft.com/en-us/cc136535.aspx>