SUB: Design Pattern And Application Framework

TOPIC: HTML

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- A design patterns are **well-proved solution** for solving the specific problem/task.
- Now, a question will be arising in your mind what kind of specific problem? Let me explain by taking an example.
- **Problem Given:**
  Suppose you want to create a class for which only a single instance (or object) should be created and that single object can be used by all other classes.
- **Solution:**
  Singleton design pattern is the best solution of above specific problem. So, every design pattern has **some specification or set of rules** for solving the problems. What are those specifications, you will see later in the types of design patterns.

- But remember one-thing, design patterns are programming language independent strategies for solving the common object-oriented design problems. That means, a design pattern represents an idea, not a particular implementation.
- By using the design patterns you can make your code more flexible, reusable and maintainable. It is the most important part because java internally follows design patterns.
- To become a professional software developer, you must know at least some popular solutions (i.e. design patterns) to the coding problems.

Advantage of design pattern:

- They are reusable in multiple projects.
- They provide the solutions that help to define the system architecture.
- They capture the software engineering experiences.
- They provide transparency to the design of an application.
- They are well-proved and testified solutions since they have been built upon the knowledge and experience of expert software developers.
- Design patterns don’t guarantee an absolute solution to a problem. They provide clarity to the system architecture and the possibility of building a better system.

When should we use the design patterns?

- We must use the design patterns **during the analysis and requirement phase of SDLC**(Software Development Life Cycle).
- Design patterns ease the analysis and requirement phase of SDLC by providing information based on prior hands-on experiences.

Core Java Design Patterns

1.Creational Design Pattern

These design patterns provide a way to create objects while hiding the creation logic, rather than instantiating objects directly using new operator. This gives program more flexibility in deciding which objects need to be created for a given use case.

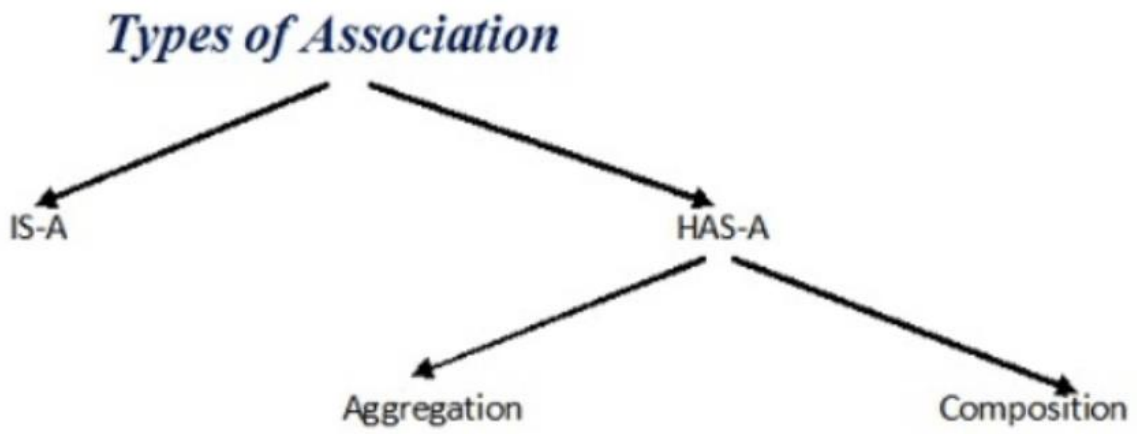
- Factory Pattern
- Abstract Factory Pattern
- Singleton Pattern
- Prototype Pattern
- Builder Pattern.

2. Structural Design Pattern

These design patterns concern class and object composition. Concept of inheritance is used to compose interfaces and define ways to compose objects to obtain new functionalities.

A composition in Java between two objects associated with each other **exists when there is a strong relationship between one class and another**. Other classes cannot exist without the owner or parent class. For example, A 'Human' class is a composition of Heart and lungs. When the human object dies, nobody parts exist

- Adapter Pattern
- Bridge Pattern
- Composite Pattern
- Decorator Pattern
- Facade Pattern
- Flyweight Pattern
- Proxy Pattern



3. Behavioral Design Pattern

These design patterns are specifically concerned with communication between objects.

- Chain Of Responsibility Pattern
- Command Pattern
- Interpreter Pattern
- Iterator Pattern
- Mediator Pattern
- Memento Pattern
- Observer Pattern
- State Pattern
- Strategy Pattern
- Template Pattern
- Visitor Pattern

- **Christopher Alexander** was the first person who invented all the above Design Patterns in 1977.

- **Gang of Four - Design patterns, elements of reusable object-oriented software** book was written by a group of four persons named as Erich Gamma, Richard Helm, Ralph Johnson and John Vlissides in 1995.
- That's why all the above 23 Design Patterns are known as **Gang of Four (GoF) Design Patterns.**

HTML Beginning

- HTML stands for Hyper Text Markup Language.
- HTML is derived from a language SGML (Standard Graphics Markup Language).
- The future of HTML is XML (eXtended Markup Language).

Versions of HTML

- **HTML 2.0 :** Some of the Netscape/Microsoft extensions, and did not support tables, or ALIGN attributes.
- **HTML 3.0 :** Upgrade the features and utility of HTML. However, it was never completed or implemented.
- **HTML 3.2 :** Support for TABLES, image, heading and other element ALIGN attributes, and a few other finicky details.
- **HTML 4 :** It includes support for most of the proprietary extensions, plus support for extra features (Internationalized documents, support for Cascading Style Sheets, extra TABLE, FORM, and JavaScript enhancements).
- **HTML 5 :** The <canvas> element for 2D drawing,<video>,<audio> & some extra features support like New form controls, like calendar, date, time, email, url, search.

HTML Beginning

- HTML is not a programming language, it is a Markup Language.
- A markup language is a set of markup tags.
- HTML uses markup tags to describe web pages.
- HTML is not case sensitive language.
- HTML documents contain HTML tags and plain text

HTML Structure

- A tag is always enclosed in angle bracket <>like <HTML>
- HTML tags normally come in pairs like

  <HTML> and </HTML> i.e.
- Start tag = <HTML>
- End tag =</HTML>
- Start and end tags are also called opening tags and closing tags

How to Start With HTML

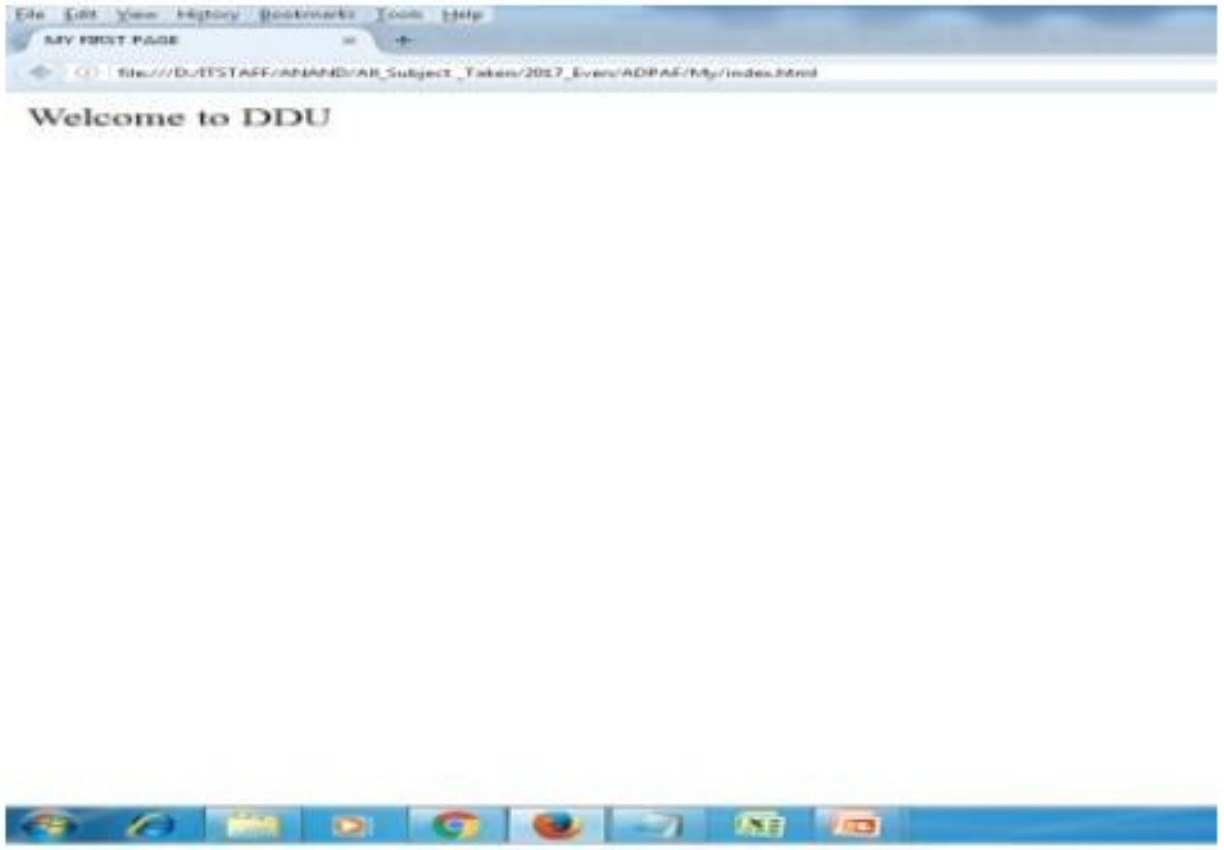
- Write html code in notepad.
- Save the file with (.Html)/(.Htm) extension.
- View the page in any web browser viz. INTERNET EXPLORER, NETSCAPE NAVIGATOR etc.
- The purpose of a web browser (like internet explorer or firefox) is to read html documents and display them as web pages.

Cont…

- An HTML file must have an .htm or .html file extension
- HTML files can be created with text editors: – NotePad, NotePad ++, PSPad
- Or HTML editors (WYSIWYG Editors): – Microsoft FrontPage – Macromedia Dreamweaver – Netscape Composer – Expression Web

Parts of HTML Document

```
<HTML>
   <HEAD>
      <TITLE>
            MY FIRST PAGE
      </TITLE>
    </HEAD>
    <BODY>
         Welcome to DDU
     </BODY>
</HTML>
```



Explanation of HTML Tag

- <HTML> - Describe HTML web page that is to be viewed by a web browser.
- <HEAD> - This defines the header section of the page.
- <TITLE> - This shows a caption in the title bar of the page.
- <BODY> - This tag show contents of the web page will be displayed.

Text Formatting Tags

- There are six heading elements

<H1>,<H2>,<>,<H4>, <H5>,<H6>

- Tag <p> for Paragraph.
- Tag
 line break.

Text Formatting Tags

<b>	**Defines bold text**
<big>	Defines big text
****	Defines emphasized text
<i>	Defines italic text
<small>	Defines small text
****	Defines strong text
<sub>	Defines subscripted text
<super>	Defines superscripted text
<ins>	Defines inserted text
<del>	Defines deleted text
<tt>	Defines teletype text
<u>	Defines underline text
<strike>	Defines strike text

Text Formatting Result

This text is Bold

This text is Emphasized

This text is Italic

This text is Small

This is Subscript and Superscript

This text is Strong

This text is Big

This text is Underline

~~This text is Strike~~

This text is Teletype

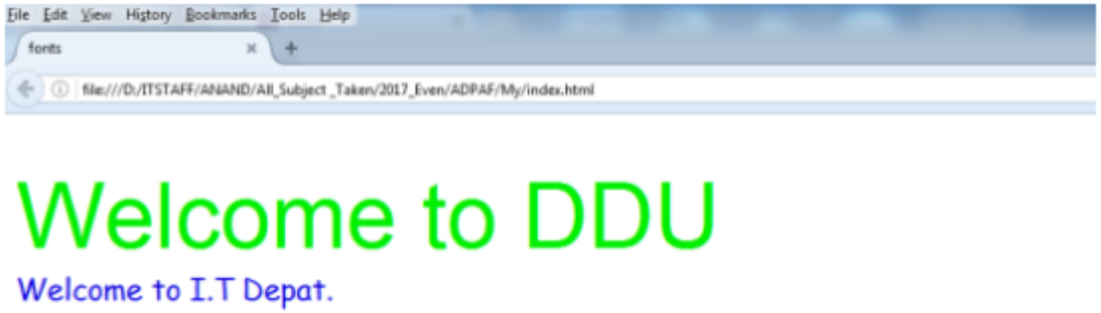
Font Tag

- This element is used to format the size, typeface and color of the enclosed text.
- The commonly used fonts for web pages are Arial, Comic Sans MS , Lucida Sans Unicode, Arial Black, Courier New, Times New Roman,

Arial Narrow, Impact, Verdana.

- The size attribute in font tag takes values from 1 to 7.

Cont…




```
<html>
<head><title> fonts</title></head>
<body>
<br><font color=“green" size="7" face="Arial">
Welcome to DDU </font>
<br><font color=“blue" size="3" face="Comic Sans
MS "> Welcome to I.T Depat. </font>
</body>
</html>
```

Background & Text Color Tag

- The attribute bgcolor is used for changing the back ground color of the page.

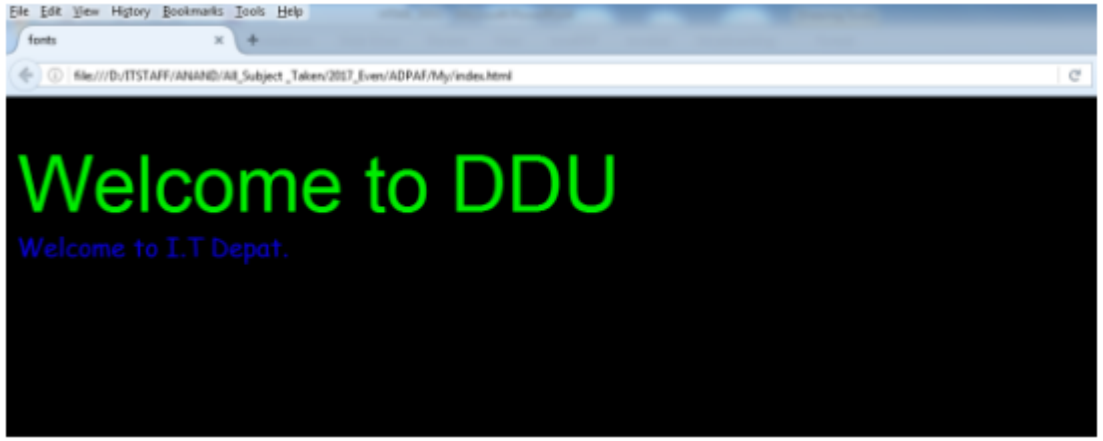
  <body bgcolor="Green" >

- Text is use to change the color of the enclosed text.

  <body text="White">

Background & Text Color Tag

```
<html>
   <head><title> fonts</title></head>
    <body bgcolor="Black">
      <br><font color=“green" size="7" face="Arial">
         Welcome to DDU </font>
      <br><font color=“blue" size="3" face="Comic Sans MS ">
          Welcome to I.T Depat. </font>
    </body>
</html>
```



Text Alignment Tag

- It is use to alignment of the text.
- Left alignment <align=“left”>
- Right alignment <align=“right”>
- Center alignment <align=“center”>

Hyperlink Tag

- A hyperlink is a reference (an address) to a resource on the web.

- The HTML anchor element <a>, is used to define both hyperlinks and anchors.

- Link text

Cont…

```
<html>
   <head><title> fonts</title></head>
    <body bgcolor="Black">
     <br> <font color=“green" size="7" face="Arial" >
        Welcome to DDU </font>
     <br><font color=“blue" size="3" face="Comic Sans MS ">
         Welcome to I.T Depat. </font>
     <br><font color="#FF0FF5" size ="4">
     <ahref="http://www.google.com">Go to Go
    </font>
     <br>
     </body>
</html>
```

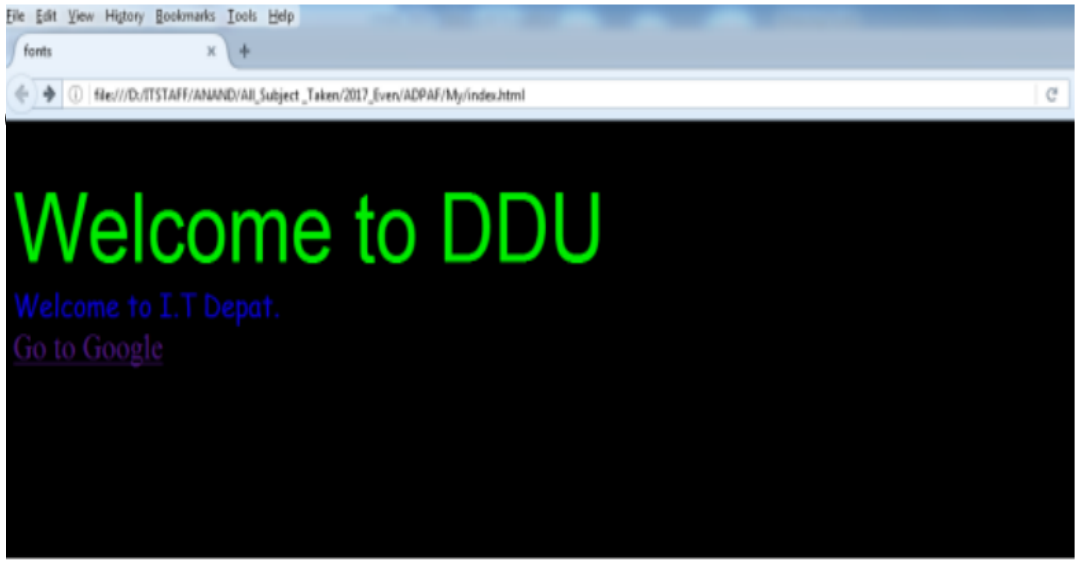


Image Tag

- To display an image on a page, you need to use the src attribute. src stands for "source". The value of the src attribute is the URL of the image you want to display on your page.
- It is a empty tag.
- <IMG SRC ="url">

  <IMG SRC=“Relative Path to Image“>
- <IMG SRC="picture.gif“ HEIGHT="30" WIDTH="50">

Image Attributes - <img> tag

<img>	Defines an image
<Src>	display an image on a page,Src stands for "source".
<Alt>	Define "alternate text" for an image
<Width>	Defines the width of the image
<Height>	Defines the height of the image
<Border>	Defines border of the image
<Hspace>	Horizontal space of the image
<Vspace>	Vertical space of the image
<Align>	Align an image within the text
<background>	Add a background image to an HTML page

HTML Table Tag

• **<table>**	•used to create table
• **<tr>**	•table is divided into rows
• **<td>**	•each row is divided into data cells
• **<th>**	•Headings in a table
• **<Caption>**	•caption to the table
• **<colgroup>**	•Defines groups of table columns
• **<col>**	•Defines the attribute values for one or more columns in a table
• **<thead>**	•Defines a table head
• **<tbody>**	•Defines a table body
• **<tfoot>**	•Defines a table footer
• **<Cellspacing>**	•amount of space between table cells.
• **<Cellpadding>**	•space around the edges of each cell
• **<Colspan>**	•No of column working with will span
• **<rowspan>**	•No of rows working with will span attribute takes a number
• **<Border>**	

Cont…

```
<html>
  <body>
    <h3>Table without border</h3>
   <table>
     <tr> <td><font color="blue" size="3" face="Comic Sans MS ">MILK</font></td>
      <td><font color="blue" size="3" face="Comic Sans MS ">TEA</font></td>
     <td><font color="blue" size="3" face="Comic Sans MS ">COFFEE</font></td>
          </tr>
     <tr> <td><font color="blue" size="3" face="Comic Sans MS ">400</font></td>
      <td><font color="blue" size="3" face="Comic Sans MS ">500</font></td>
      <td><font color="blue" size="3" face="Comic Sans MS ">600</font></td>
     </tr>
</table> </body>
</html>
```

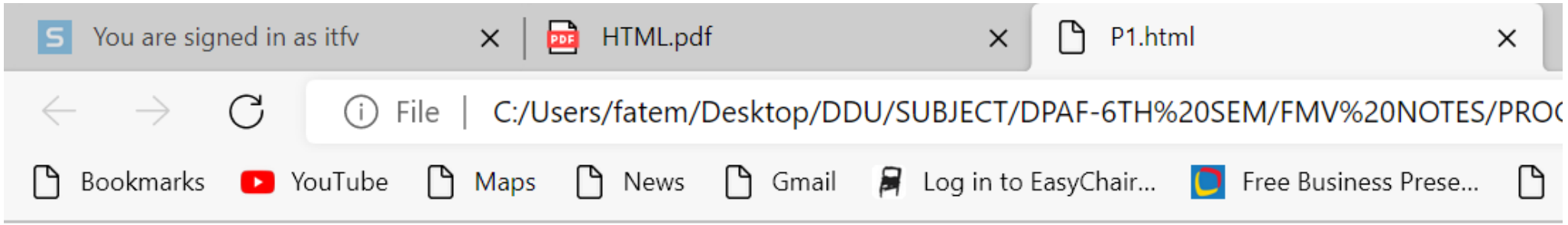


Table without border

MILK	TEA	COFFEE
400	500	600

Cont…

```
<html>
  <body>
    <h3>Table with border</h3>
   <table border=1>
     <tr> <td><font color="blue" size="3" face="Comic Sans MS ">MILK</font></td>
      <td><font color="blue" size="3" face="Comic Sans MS ">TEA</font></td>
     <td><font color="blue" size="3" face="Comic Sans MS ">COFFEE</font></td>
         </tr>
     <tr> <td><font color="blue" size="3" face="Comic Sans MS ">400</font></td>
      <td><font color="blue" size="3" face="Comic Sans MS ">500</font></td>
      <td><font color="blue" size="3" face="Comic Sans MS ">600</font></td>
     </tr>
</table> </body>
</html>
```

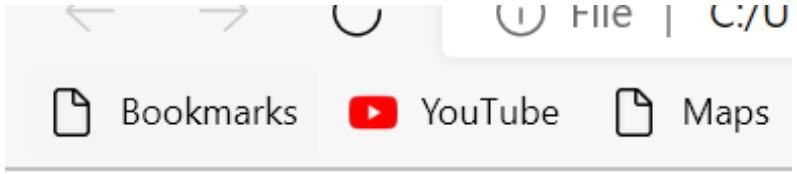


Table with border

MILK	TEA	COFFEE
400	500	600

HTML List Tag

- Lists provide methods to show item or element sequences in document content.

There are three main types of lists:->

- Unordered lists:-unordered lists are bulleted.
- Ordered lists:- Ordered lists are numbered.
- Definition lists:- Used to create a definition list

List Tags

- **<LI>** <LI> is an empty tag,it is used for representing the list items
- **<OL>** Ordered list
- **<UL>** Unordered list
- **<DL>** Defines a definition list
- **<DT>** Defines a term (an item) in a definition list

- **<DD>** Defines a description of a term in a definition list

Unordered List

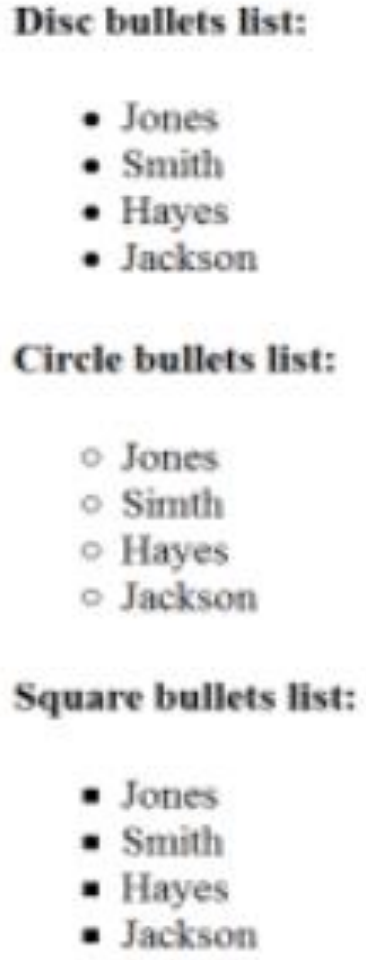
- TYPE attribute to the <UL> tag to show different bullets like:-
  1. Disc
  2. Circle
  3. Square

- **<ul Type =“disc”>…..
**

  - The attribute TYPE can also be used with <LI> element.

Cont…

```
<h4>Disc bullets list:</h4>
    <ul type="disc"> <li>Jones</li>
      <li>Smith</li>
      <li>Hayes</li>
      <li>Jackson</li></ul>
<h4>Circle bullets list:</h4>
     <ul type="circle"> <li>Jones</li>
      <li>Simth</li>
      <li>Hayes</li>
      <li>Jackson</li></ul>
<h4>Square bullets list:</h4>
      <ul type="square"> <li>Jones</li>
        <li>Smith</li>
        <li>Hayes</li>
        <li>Jackson</li></ul>
```



Ordered List

- The TYPE attribute has the following value like:-
- TYPE = "1" (Arabic numbers)
- TYPE = "a" (Lowercase alphanumeric)
- TYPE = "A" (Uppercase alphanumeric)
- TYPE = "i" (Lowercase Roman numbers)
- TYPE = "I" (Uppercase Roman numbers)
- By default Arabic numbers are used

```
<h4>Numbered list:</h4>
      <ol> <li>Jones</li>
        <li>Smith</li>
        <li>Hayes</li>
        <li>Jackson</li></ol>
<h4>Letters list:</h4>
      <ol type="A"> <li>Jones</li>
        <li>Smith</li>
        <li>Hayes</li>
        <li>Jackson</li></ol>
<h4>Roman numbers list:</h4>
       <ol type="I"> <li>Jones</li>
        <li>Smith</li>
       <li>Hayes</li>
        <li>Jackson</li></ol>
```

Numbered list:

1. Jones
2. Smith
3. Hayes
4. Jackson

Letters list:

A. Jones
B. Smith
C. Hayes
D. Jackson

Roman numbers list:

I. Jones
II. Smith
III. Hayes
IV. Jackson

HTML Form

- A form is an area that can contain form elements.
- Form elements are elements that allow the user to enter information in a form. like text fields, textarea fields, drop-down menus, radio buttons and checkboxes etc.
- A form is defined with the <form> tag.

The syntax:-

```
<form>
  .
   input elements
  .
</form>
```

Form Tags

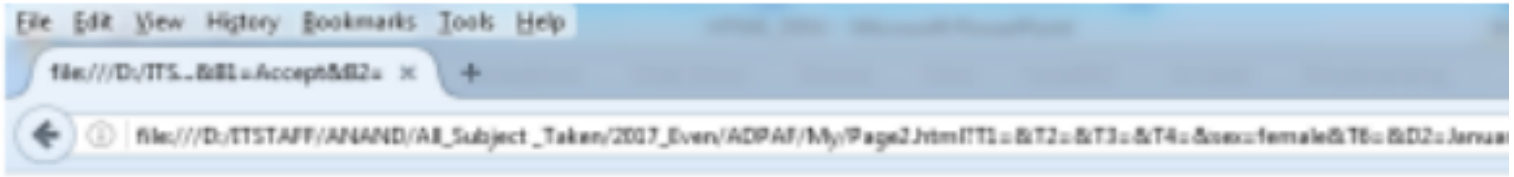
<form>	•Defines a form for user input
<input>	•used to create an input field
<text>	•Creates a single line text entry field
<textarea>	•Defines a text-area (a multi-line text input control)
<password>	•Creates a single line text entry field. And the characters entered are shown as asterisks (*)
<label>	•Defines a label to a control
<option>	•Creates a Radio Button.
<select>	•Defines a selectable list (a drop-down box)
<button>	•Defines a push button
<value>	•attribute of the option element.
<checkbox>	•select or unselect a checkbox
<dropdown box>	•A drop-down box is a selectable list

HTML Page

```
<html>
<head><title> fonts</title></head>
<body bgcolor="White">
<br>  <font color="green" size="7" face="Arial" >  Welcome to DDU </font>
<br><font color="blue" size="3" face="Comic Sans MS "> Welcome to I.T Depat. </font>
<br><font color="#FF0FF5" size ="4"><a href="Page2.html">Go to Page2</a></font>
<br><br><br>

<h4>Numbered list:</h4>
<ol> <li>Jones</li>
<li>Smith</li>
<li>Hayes</li>
<li>Jackson</li></ol>
<h4>Letters list:</h4>
<ol type="A"> <li>Jones</li>
<li>Smith</li>
<li>Hayes</li>
<li>Jackson</li></ol>
<h4>Roman numbers list:</h4>
<ol type="I"> <li>Jones</li>
<li>Smith</li>
<li>Hayes</li>
<li>Jackson</li></ol>
<br>
<IMG SRC="Test/Lemon.JPG" HEIGHT="100" WIDTH="100">
<h3>Table without border</h3>
    <table border="1">
      <tr> <td><font color="blue" size="3" face="Comic Sans MS ">MILK</font></td>
                                <td><font color="blue" size="3" face="Comic Sans MS ">TEA</font></td>
                                <td><font color="blue" size="3" face="Comic Sans MS ">COFFEE</font></td> </tr>
                <tr> <td><font color="blue" size="3" face="Comic Sans MS ">400</font></td>
                                <td><font color="blue" size="3" face="Comic Sans MS ">500</font></td>
                                <td><font color="blue" size="3" face="Comic Sans MS ">600</font></td> </tr>
                                </table>


</body>
</html>
```



Create a Internet Mail Account

First Name

Last Name

Desired Login Name @mail.com

Password

Male
Female

Birthday -Select One-

TypeYourself

Accept

HTML 5

- New HTML5 Elements
- The most interesting new HTML5 elements are:

New semantic elements like <header>, <footer>, <article>, and <section>.

New attributes of form elements like number, date, time, calendar, and range.

- New graphic elements: <svg> and <canvas>.
- New multimedia elements: <audio> and <video>.

New HTML5 API's

- HTML Geolocation
- HTML Drag and Drop
- HTML Local Storage
- HTML Application Cache
- HTML Web Workers
- HTML SSE

HTML5 Browser Support

- HTML5 is supported in all modern browsers.
- In addition, all browsers, old and new, automatically handle unrecognized elements as inline elements.
- Because of this, you can "teach" older browsers to handle "unknown" HTML elements.

New Elements in HTML5

- Tag Description
- <article> Defines an article in the document
- <aside> Defines content aside from the page content
- <bdi> Defines a part of text that might be formatted in a different direction from other text
- <details> Defines additional details that the user can view or hide
- <dialog> Defines a dialog box or window
- <figcaption> Defines a caption for a <figure> element
- <figure> Defines self-contained content, like illustrations, diagrams, photos, code listings, etc.
- <footer> Defines a footer for the document or a section
- <header> Defines a header for the document or a section

- <main> Defines the main content of a document
- <mark> Defines marked or highlighted text
- <menuitem> Defines a command/menu item that the user can invoke from a popup menu
- <meter> Defines a scalar measurement within a known range (a gauge)
- <nav> Defines navigation links in the document
- <progress> Defines the progress of a task
- <rp> Defines what to show in browsers that do not support ruby annotations
- <rt> Defines an explanation/pronunciation of characters (for East Asian typography)
- <ruby> Defines a ruby annotation (for East Asian typography)
- <section> Defines a section in the document
- <summary> Defines a visible heading for a <details> element
- <time> Defines a date/time
- <wbr> Defines a possible line-break

New Input Types

- color
- date
- datetime
- datetime-local
- email
- month
- number
- range
- search
- tel
- time
- url
- week

New Input Attributes

- autocomplete
- autofocus
- form
- formaction
- formenctype
- formmethod
- formnovalidate
- formtarget
- height and width
- list
- min and max
- multiple
- pattern (regexp)
- placeholder
- required
- step

HTML5 Graphics

- Tag Description
- <canvas> Draw graphics, on the fly, via scripting (usually JavaScript)
- <svg> Draw scalable vector graphics

New Media Elements

Tag	Description
<audio>	Defines sound content
<embed>	Defines containers for external applications (like plug-ins)
<source>	Defines sources for <video> and <audio>
<track>	Defines tracks for <video> and <audio>
<video>	Defines video or movie content