Web Programming Technologies

Introduction to WEB Session-01

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Agenda for Today's Session

➤ **Introduction to Web Programming**

➤ **What is Internet?**

➤ **Uses of Internet**

➤ **How the Internet works?**

➤ **DNS**

➤ **What is Web?**

➤ **How web works?**

➤ **Web Servers**

➤ **HTTP Protocol**

➤ **HTTP Connections**

➤ **Stateless nature of HTTP**

➤ **HTTP Request and Response Message**

➤ **Request Methods**

➤ **Status codes**

➤ **HTTPS**

Introduction

In the current information age, the Web plays an important role in connecting people, sharing relevant content and enabling us to conduct our daily activities.

So It Begins

Principals of web application, web application workflow, Languages for web programming, Database-driven websites, authentication and session, testing and debugging.

When it ends…..

You should;

➢ Have an understanding of the importance of web technologies

➢ Be able to design and build websites

➢ Be able to build static and dynamic WebPages

➢ Integrate websites with databases

➢ Develop basic applications using a variety of internet programming languages

➢ But in reality it can be much, much more………..

Where it is Heading

- Web Designer
- Web Developer
- Full Stack Web Developer
- UI Developer
- Front End Developer

What is web programming

Web programming is used to build:

➤ Web Pages:

Web page is an electronic document written in a computer language called HTML. These web pages are linked together through a system of connections called hypertext links, which enable the user to jump from one web page to another by clicking on a link.

➤ Websites:

A collection of related web pages found at a single address.

A URL serves as the top-level address of a Web site and points to that Website's home page. That page serves as a reference point, containing pointers to additional HTML pages or links to other websites.

Types of Websites : Static Website and Dynamic Website

➢ **Web Applications:**

A web App is a set of WebPages that are generated in response to user requests

Ex. Search engines, online stores, auctions, news sites, games etc.

Static Website

Static websites contain fixed number of pages and format of web page is fixed which delivers information to the client.

➢ **Time saving: A static website is quick to develop.**

➢ **Cost Effective: Static websites are cheaper to develop.**

➢ **Fast transferring: Static websites do not have complex structures and can be easily and quickly transferred from server to client without much processing time.**

➢ **Difficult to change: All the HTML files would need to be individually changed even for a small change made to the website which takes lot of time.**

➢ **Limited Functionality: It does not offer all the functionalities that a dynamic website can.**

Dynamic Website

Dynamic websites can change the web page contents dynamically while the page is running on client's browser.

➢ Easy to update: No expert knowledge is needed in changing the dynamic website.

➢ Interactive: Dynamic websites interact with the users and changes according to their behavior.

➢ Quick to Responsiveness: Can be quickly updated to become responsive to various screen sizes.

➢ Smooth Navigation: User can jump from one page to the other without any problem.

What is Internet??

➢ A computer network made up of thousands of networks worldwide

➢ It consist of millions of computers interconnected with one another via a modem and Transmission Control Protocol/Internet Protocol suite, (TCP/IP)

➢ Internet is a global network of computers which are mostly connected using telephone lines/satellites for the purpose of sharing information

Uses of Internet

Internet Service Provider

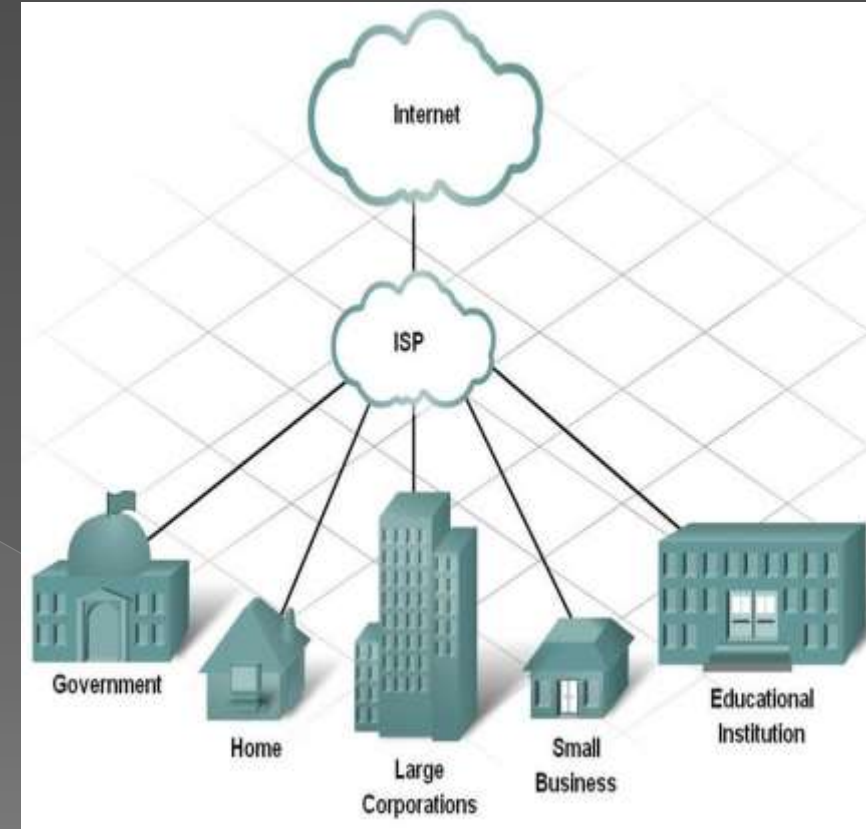Is a company that provides connection to the internet.

Jio

Airtel

Vodafone Idea
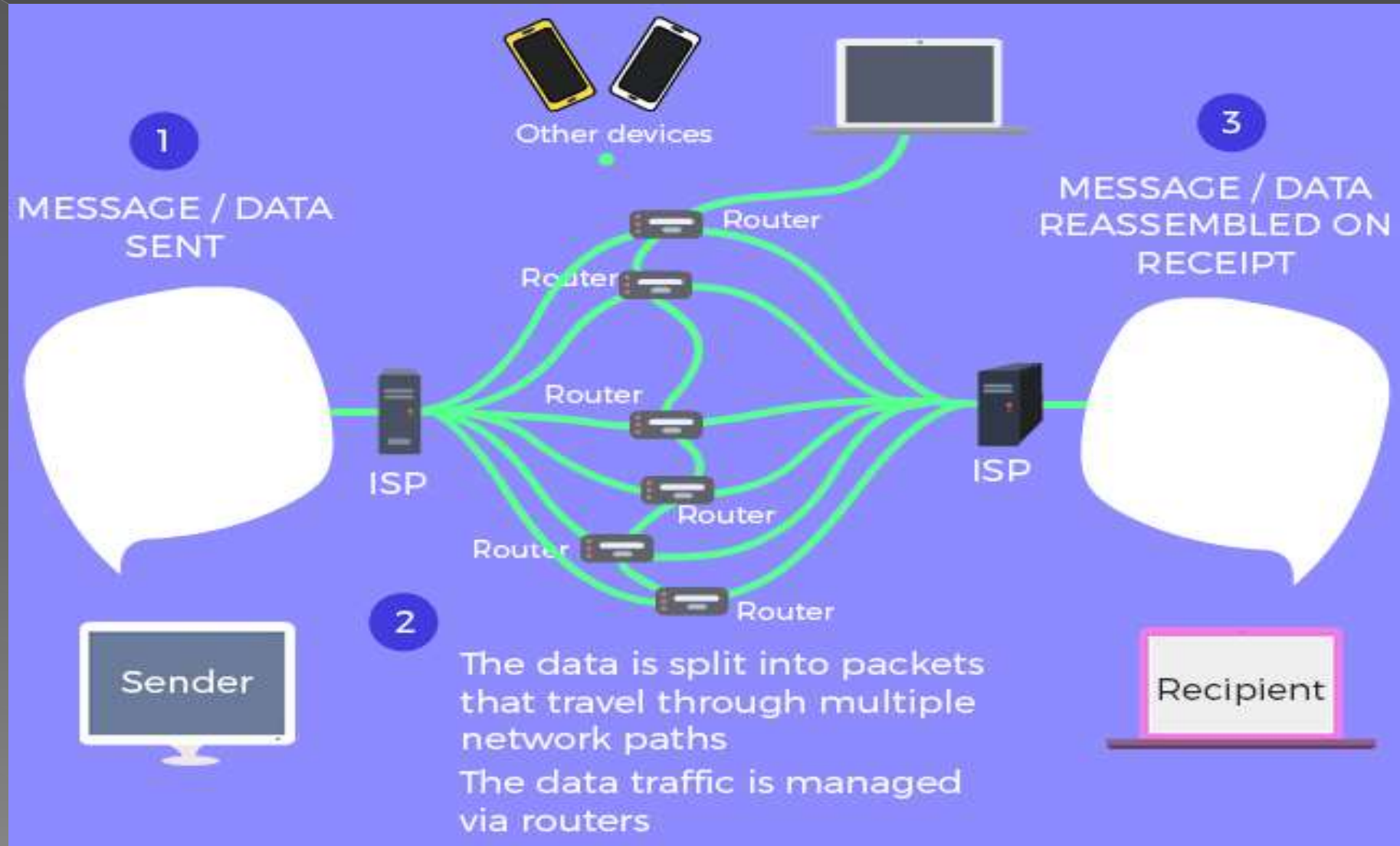
BSNL

MTNL

Hathway

ACT Fibernet

Web Browser

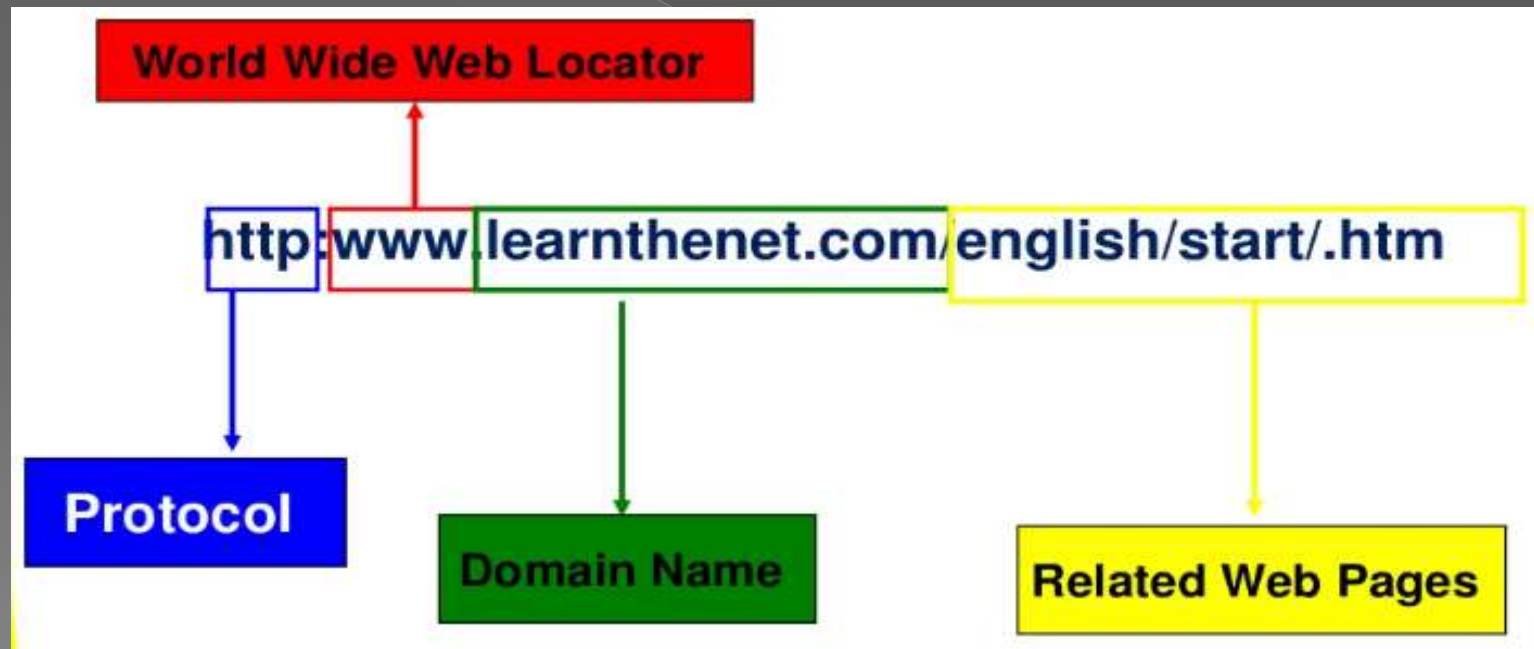Is a program that is used to navigate the internet.

How the Internet Works??

URL

➢ **URL is the address of an object, a document, a file or a web page on the internet.**

Parts of URL:

http:/.(Hypertext Transfer Protocol)

➢ Protocol used in the communication between the browser and the web server.

WWW:

➢ The Web consists of pages that can be accessed using a Web browser.

Domain Name System

- Tells the name of the owner of the site.
- Suffix type extension name that tells what the site is about.
- Sometimes it has country code that tells where the website is located.
- Learnthenet- name of the owner
- .com- a suffix name that tells a site is a commercial site.

Related web page:

➢ **English/start.htm**

➢ **Is a directory or folder connected to the web that contains a group of related web pages.**

WWW or Web or W3??

➤ **The World Wide Web is a way of exchanging information between computers on the Internet.**

➤ **The World Wide Web is the network of pages of images, texts and sounds on the Internet which can be viewed using browser software .**

➤ **The World Wide Web, or Web, consists of a worldwide collection of electronic documents (Web pages).**

➤ **1989 – 1990 Tim Berners Lee invents the World Wide Web (www)**

Difference between Web and Internet

➤ Many people use the terms Internet and World Wide Web, but in fact the two terms are not synonymous. The Internet and the Web are two separate but related things.

➤ The Internet is a massive network of networks. It connects millions of computers together globally, forming a network in which any computer can communicate with any other computer as long as they are both connected to the Internet.

➤ The World Wide Web, or simply Web, is a way of accessing information over the medium of the Internet.

➤ So the Web is just a portion of the Internet, albeit a large portion, but the two terms are not synonymous and should not be confused.

How Web Works?
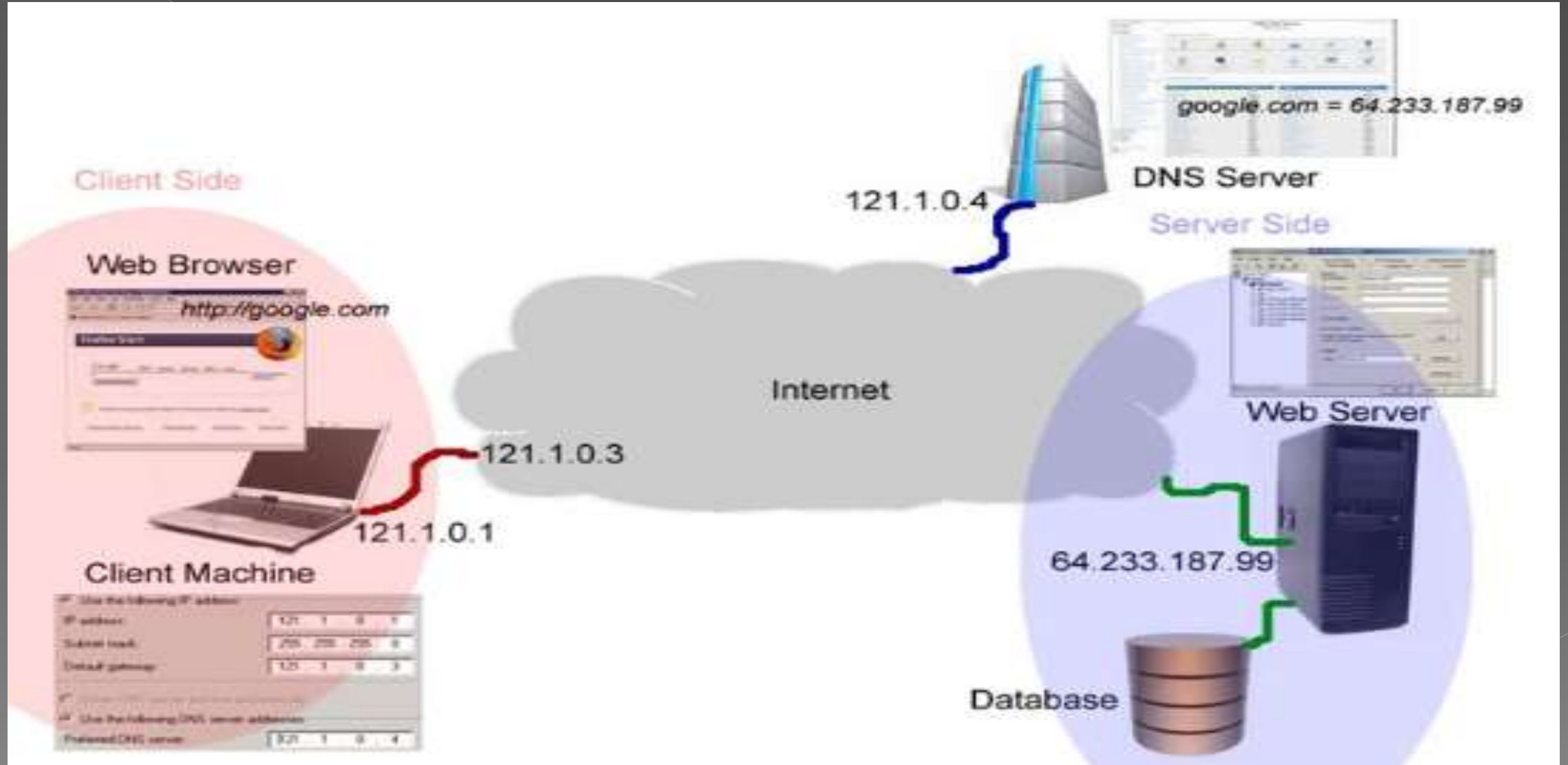
Web Server

Web server is a computer where the web content is stored. Basically web server is used to host the web sites but there exists other web servers also such as gaming, storage, FTP, email etc.

➢ **IIS Server** :- runs on the Microsoft .NET platform on the Windows OS

➢ **Apache Server :-** most widely used web server software.
Developed and maintained by Apache Software Foundation, Apache is an open source software available for free. It runs on 67% of all web servers in the world. It is fast, reliable, and secure. It can be highly customized to meet the needs of many different environments by using extensions and modules.

HTTP

Protocol:

A Protocol is a standard procedure for defining and regulating communication. For example TCP, UDP, HTTP etc.

➢ HTTP is the foundation of data communication for the World Wide Web.

➢ HTTP is the protocol that web browsers and web servers use to communicate.

➢ The HTTP is the Web's application- layer protocol for transferring various forms of data between server and client like plaintext, hypertext, image, videos and sounds .

HTTP Connections

Non-persistent connection:

➤ Each request/response pair are sent over a separate TCP connection.

➤ HTTP1.0

Persistent connection:

➤ All of the requests and their corresponding responses are sent over   the   same TCP connection.

➤ HTTP1.1

Nonpersistent HTTP

Suppose user enters URL
www.someSchool.edu/someDepartment/home.index

1a. HTTP client initiates TCP connection to HTTP server (process) at www.someSchool.edu on port 80.

1b. HTTP server at host www.someSchool.edu waiting for TCP connection at port 80. "accepts" connection, notifying client.

2. HTTP client sends HTTP *request message* (containing URL) into TCP connection socket. Message indicates that client wants object someDepartment/home.index

3. HTTP server receives request message, forms *response message* containing requested object, and sends message into its socket.

time

4. HTTP server closes TCP connection.

5. HTTP client receives response message containing html file, displays html. Parsing html file, finds 10 referenced jpeg objects.

time

6. Steps 1-5 repeated for each of 10 jpeg objects.
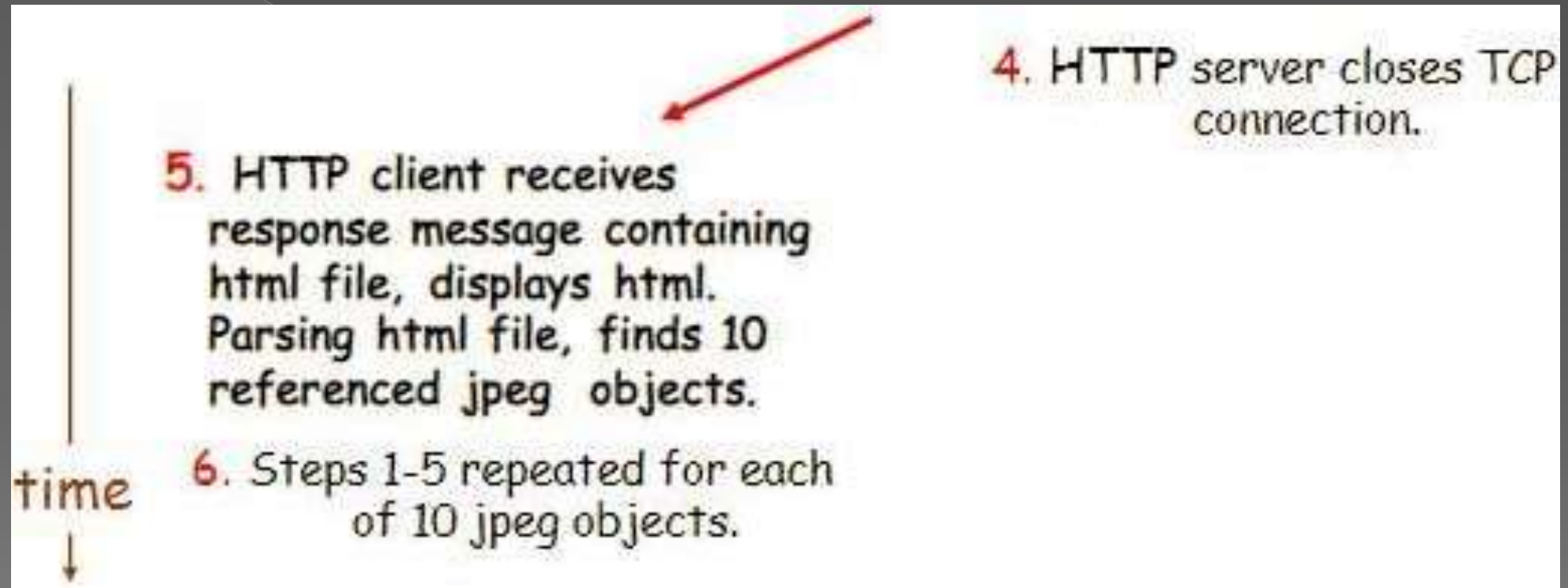
Definition of RTT: time for a small packet to travel from client to server and back.

Response time:

- one RTT to initiate TCP connection
- one RTT for HTTP request and first few bytes of HTTP response to return
- file transmission time

total time = 2RTT+transmit time
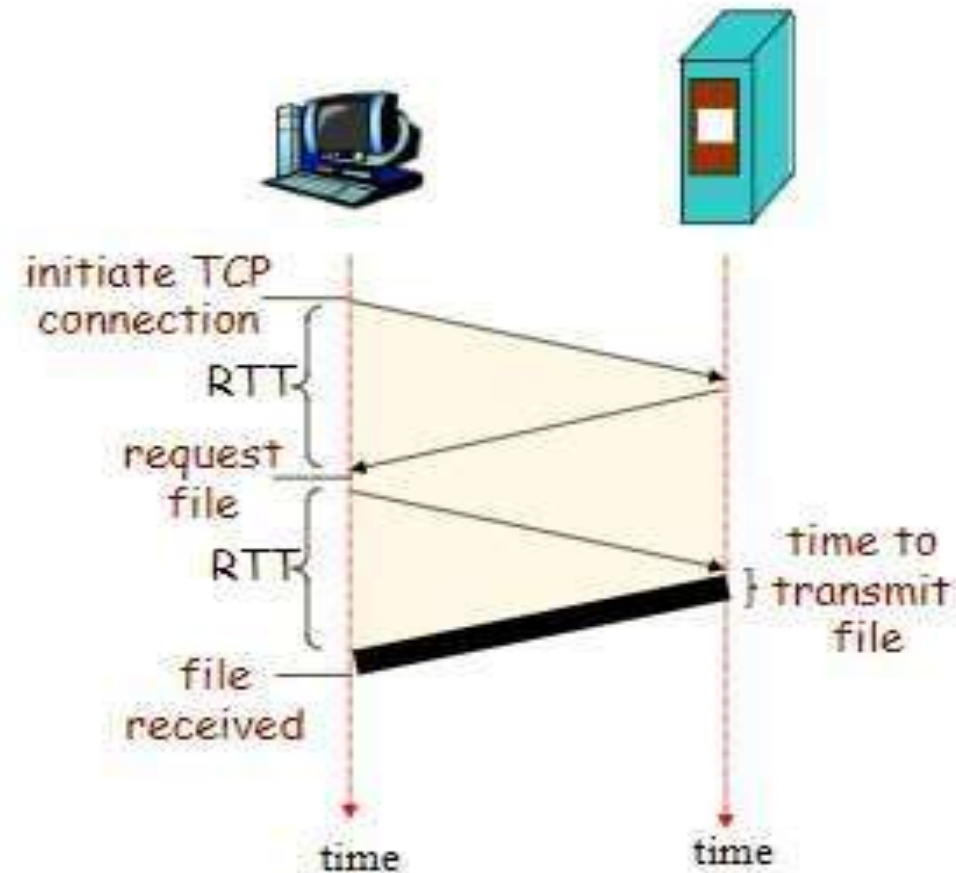
Persistent HTTP

Nonpersistent HTTP issues:

- requires 2 RTTs per object.
- OS overhead for *each* TCP connection.
- browsers often open parallel TCP connections to fetch referenced objects.

Persistent HTTP

- server leaves connection open after sending response.
- subsequent HTTP messages between same client/server sent over open connection.
- client sends requests as soon as it encounters a referenced object.
- as little as one RTT for all the referenced objects.

Stateless Nature of Http

➢ **HTTP is a stateless protocol, because an HTTP server maintains no information about the clients.**

➢ **If a particular client asks for the same object twice in a period of a few seconds, the server does not respond by saying that it just served the object to the client; instead, the server resends the object, as it has completely forgotten what it did earlier.**

Http Request Message
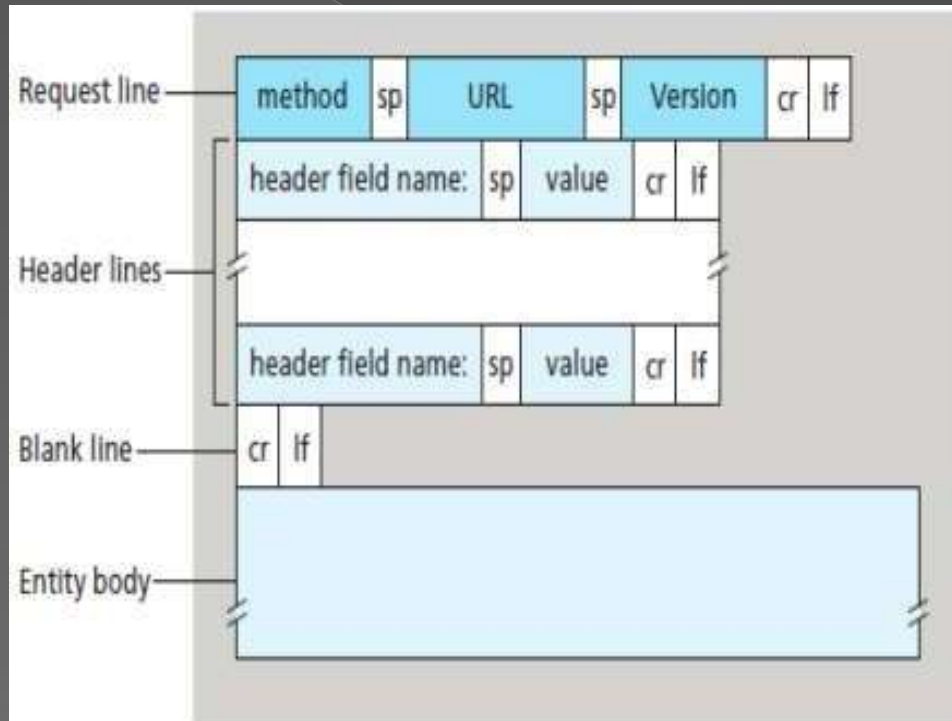
General format of an HTTP request message

```
GET /doc/test.html HTTP/1.1 ──────→ Request Line
Host: www.test101.com
Accept: image/gif, image/jpeg, */*
Accept-Language: en-us               Request Headers
Accept-Encoding: gzip, deflate
User-Agent: Mozilla/4.0
Content-Length: 35

                                     A blank line separates header & body
bookId=12345&author=Tan+Ah+Teck      Request Message Body
```

Request Message Header

Request Methods

Method	Description
GET	Request for resource from server
POST	Submit data to the server
HEAD	Same as GET but does not return the body
PUT	The data within the request must be stored at the URL supplied, replacing any existing data.
DELETE	Delete a resource
OPTIONS	Return the HTTP methods supported by the server
CONNECT	Client requests the HTTP proxy to forward a TCP connection to some destination. Used to create a TCP/IP tunnel for secure connections using HTTP proxies.

Http Response Messages

General format of an HTTP response message
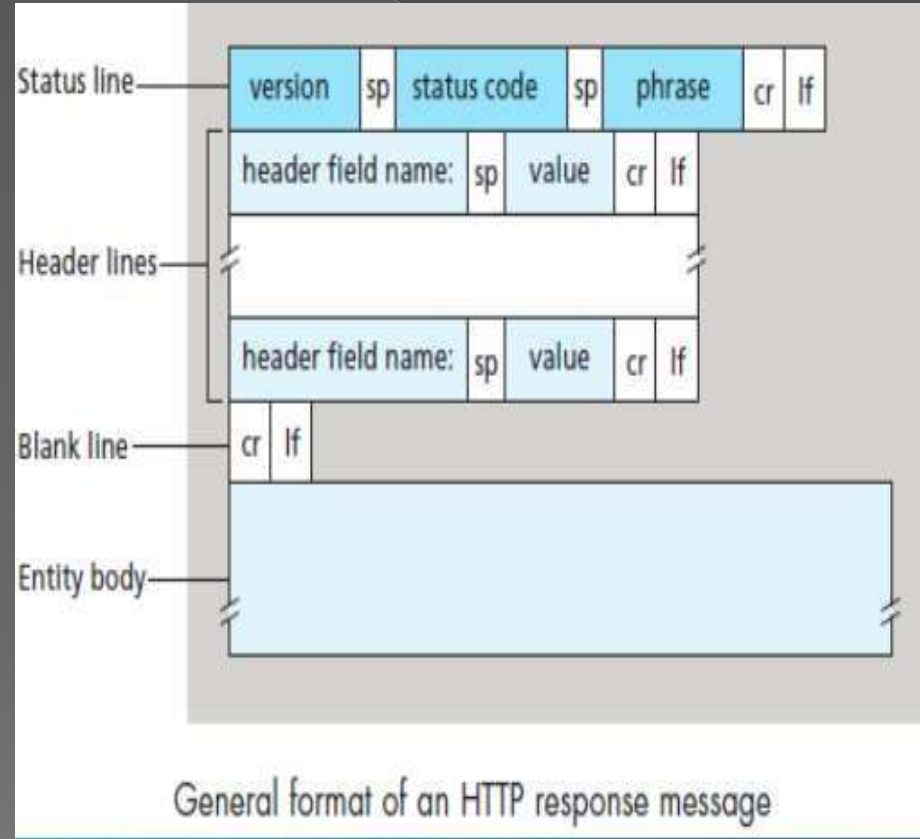
```
HTTP/1.1 200 OK                                    →  Status Line
Date: Sun, 08 Feb xxxx 01:11:12 GMT
Server: Apache/1.3.29 (Win32)
Last-Modified: Sat, 07 Feb xxxx
ETag: "0-23-4024c3a5"                                 Response Headers
Accept-Ranges: bytes
Content-Length: 35
Connection: close
Content-Type: text/html

                                                   →  A blank line separates header & body
<h1>My Home page</h1>                              →  Response Message Body
```

Response Message Header

Status Codes

Code	Description	Code	Description
200	OK	400	Bad Request
201	Created	401	Unauthorized
202	Accepted	403	Forbidden
301	Moved Permanently	404	Not Found
303	See Other	410	Gone
304	Not Modified	500	Internal Server Error
307	Temporary Redirect	503	Service Unavailable

HTTPS

Hypertext transfer protocol secure (HTTPS) is the secure version of HTTP, which is the primary protocol used to send data between a web browser and a website. HTTPS is encrypted in order to increase security of data transfer. This is particularly important when users transmit sensitive data, such as by logging into a bank account, email service, or health insurance provider.
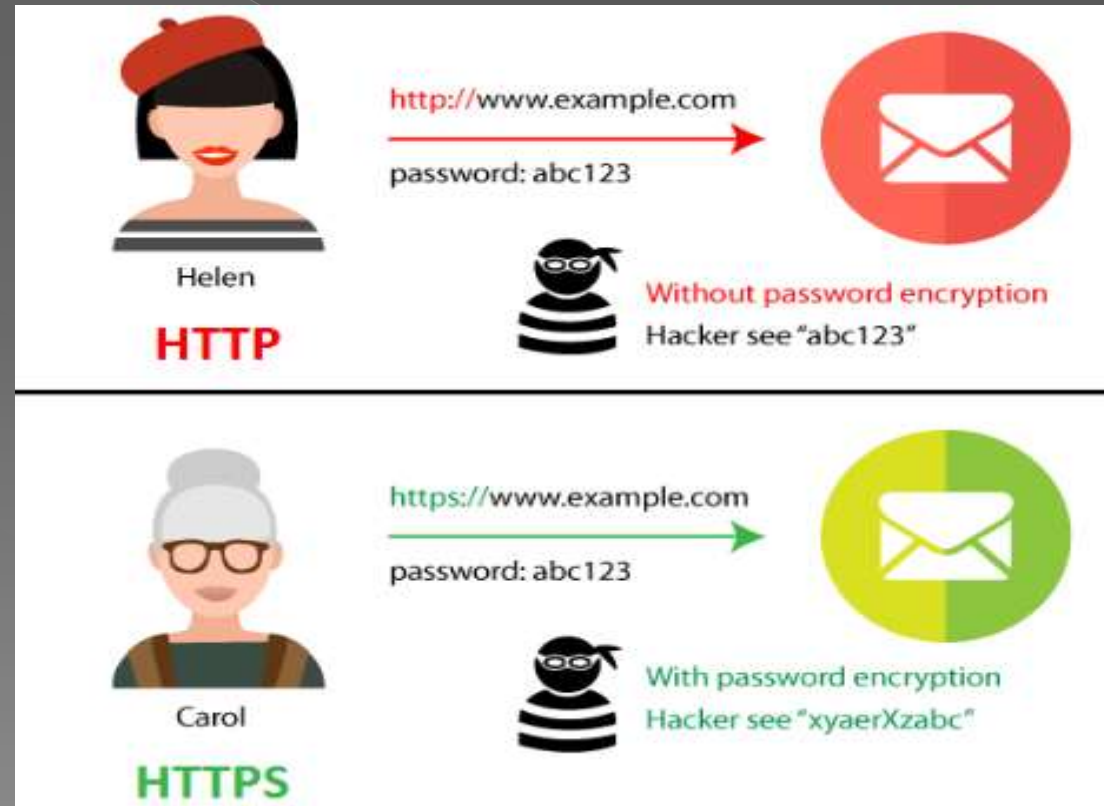
Quiz

Q1. In the process of fetching a web page from a server the HTTP request/response takes _____ RTTs.

A. **2**

B. **1**

C. **4**

D. **3**

Answer: B
       1

Q2. The values GET, POST, HEAD etc are specified in _____ of HTTP message

A. Request line
B. Header line
C. Status line
D. Entity body

Answer: A
Request Line

Q3HTTP is _____ protocol.

A. application layer
B. transport layer
C. network layer
D. none of the mentioned

Answer: A
Application Layer Protocol

Q4. Multiple object can be sent over a TCP connection between client and server in

A. persistent HTTP

B. nonpersistent HTTP

C. both (a) and (b)

D. none of the mentioned

Answer: A
    persistent HTTP

Q5. URL stands for

A. unique reference label
B. uniform reference label
C. uniform resource locator
D. unique resource locator

Answer: C
       uniform resource locator

Web Programming Technologies

HTML - Basics
Session-02

Harshita Maheshwari

Agenda for Today's Session

➢ **What is HTML?**

➢ **Why HTML is used?**

➢ **HTML Page Structure**

➢ **HTML Element & Attribute**

➢ **HTML Tag & Types of Tag**

➢ **Basic HTML Tags**

➢ **Heading, paragraph, div, span, br, hr, pre etc.**

➢ **Text Formatting Tags**

➢ **List Tags – ol, ul and definition list**

➢ **Table**

➢ **Img tag**

➢ **Anchor tag**

➢ **HTML Entities**

➢ **Marquee Tag**

➢ **FieldSet Tag**

Introduction

➢ **HTML is a language for describing web pages.**

➢ **HTML stands for Hyper Text Markup Language**

➢ **HTML is not a programming language, it is a markup language**

HYPERTEXT means ordinary text that has extra features of linking.

MARKUP means process of adding display related features.

Language has its own syntax and rules.

Three Layer of Web Design:

Structure, style and Behavior

BEHAVIOR

Javascript

PRESENTATION

CSS

Imagery

STRUCTURE

HTML markup

Site planning

Why HTML is Used?

➢ **Easy and Simple language**

➢ **Markup language**: It provides a flexible way to design web pages along with the text.

➢ **Platform Independent :** It can display on any platform like Window, Linux etc.

➢ **Attractive and interactive:** It facilitates the programmers to add Graphics, Videos and sound to the web pages.

➢ **Effective Presentation** : It has a lot of formatting tags for effective presentation

➢ **Support to Scripting language**: It support scripting languages to create dynamic web applications.

HTML Page Structure

HTML web page is divided into three parts:

➢ **Comment Section (optional) :** This section contains comments about the web page.

➢ **Head Section (optional) :** The head section is defined with a starting <head> tag and closing </head> tag. This section usually contains a title for the web page.

➢ **Body section :** The body section comes after the head section. The body section contains the entire information about the web page and its behavior.

Example:
<! DOCTYPE html>
<!-- First HTML Program -- >
<html>
<head><title> Introduction to HTML </title></head>
<body>
HTML stands for Hypertext Markup Language
</body>
</html>

HTML Element

➢ An HTML element is the collection of start tag, its attributes, an end tag and everything in between.

➢ HTML elements are the building blocks of HTML pages.

➢ HTML uses elements to specify a document's structure, to provide information and to format its contents.

➢ HTML elements are defined or represented by using HTML tags.
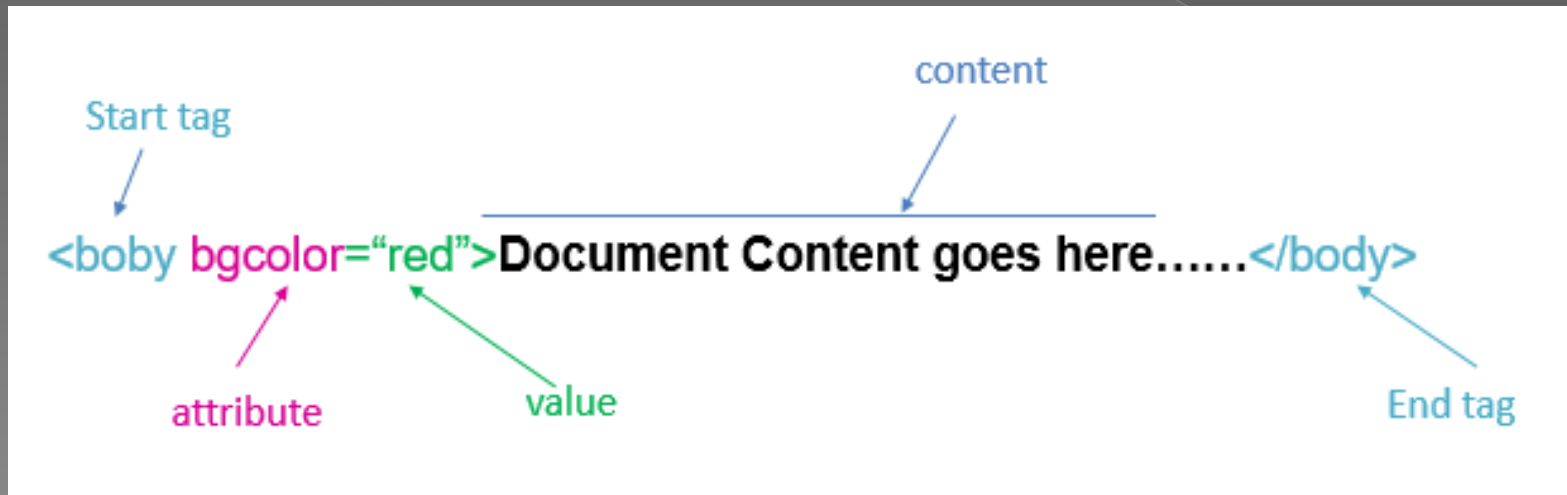
Attribute

- Attributes add discretionary properties to tags

- They are added to the opening tag within the <> brackets.

  For example

  <html lang="en">

- adds a language attribute to the <html> tag which is useful for search engines and assistive devices

- Attributes can use single or double quotes – or no quotes

HTML Tag

Tags are case-insensitive and predefined.

HTML documents are simply a text made up of HTML elements and these elements are defined using HTML tags.

Tags contain elements which provide instructions for how information will be processed or displayed on a web page.

The tag is an HTML command that shows the layout or displays the desired output of a whole or part of the web page.

Types of Tag:

➢ Container Tag

➢ Empty Tag

Container Tag

➢ **Container tag contain text between an opening and a closing tag.**

➢ **Also known as non-empty tags.**

<title> My Home Page </title>

Opening Tag   Closing Tag
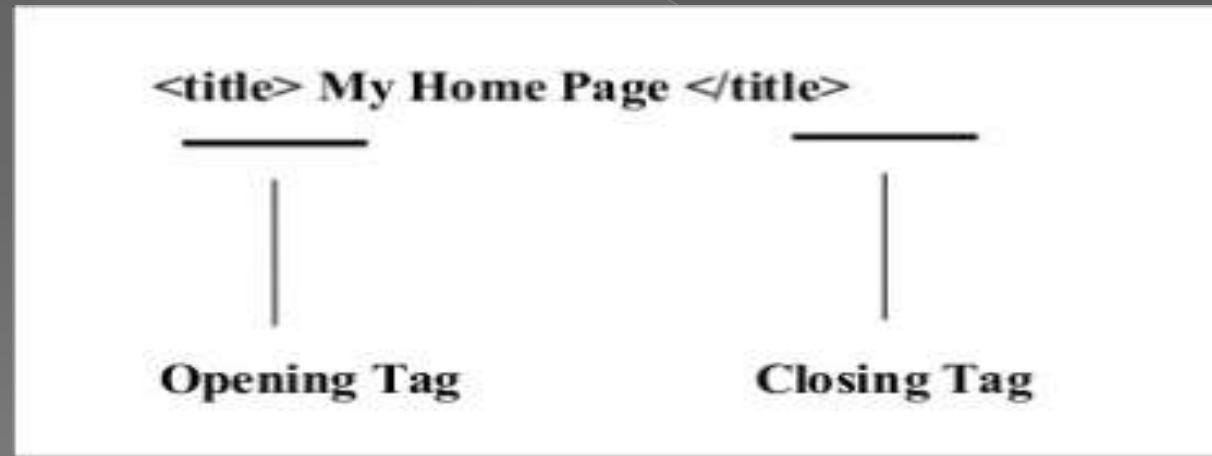
Empty Tag

An empty tag does not use a closing tag.

 Break a line

 Break a line

Empty Tags
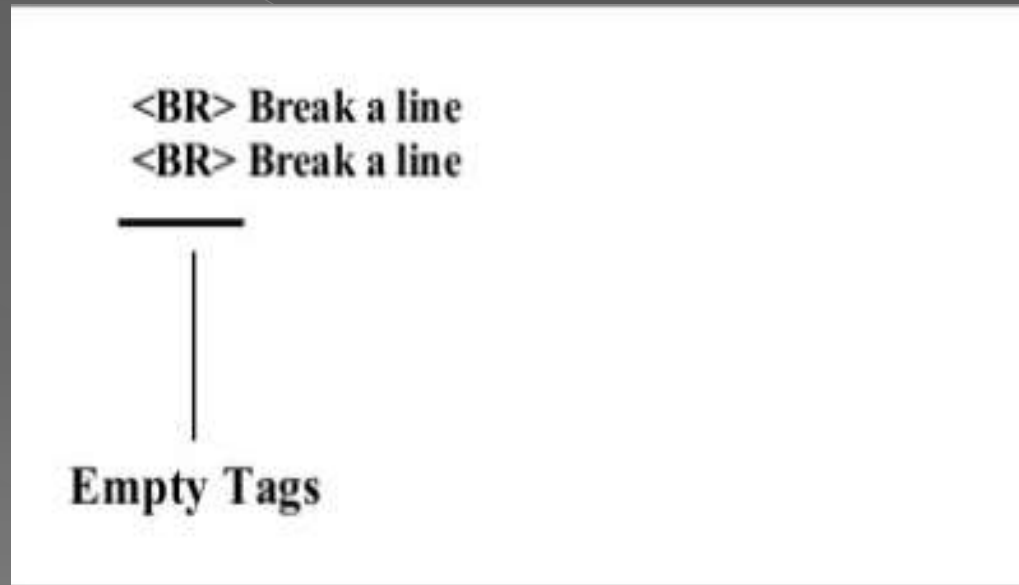
First HTML Example


```
<!DOCTYPE html>
<html>
  <head>
    <title>First Demo</title>
    <meta charset="UTF-8">
    <meta name="viewport"  content="width=device-width, initial-scale=1.0">
  </head>
  <body>
    <div>Welcome  to Infoway</div>
  </body>
</html>
```
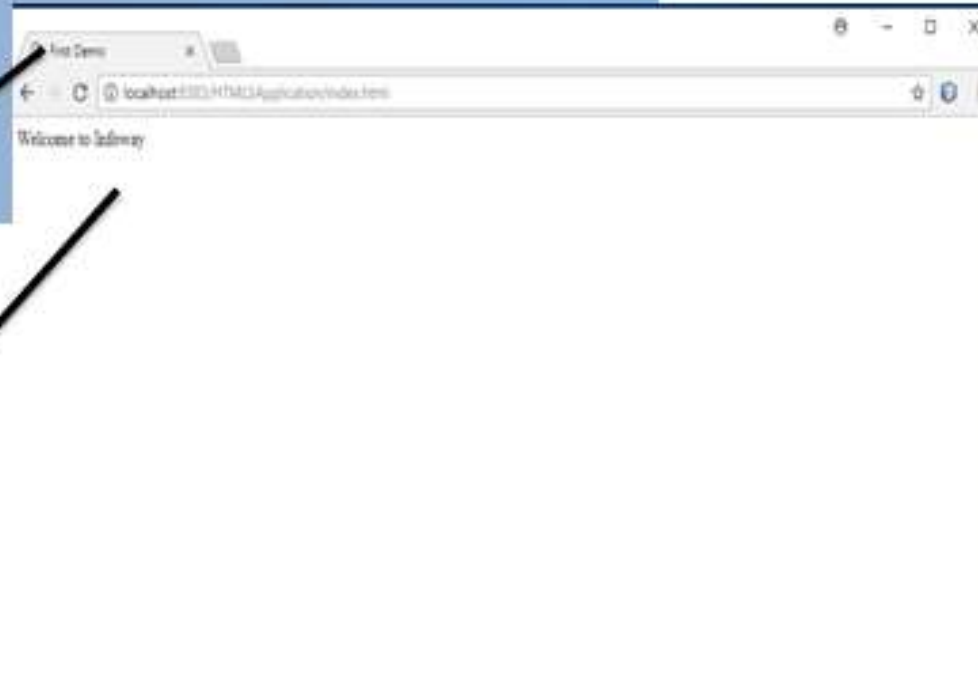
Head

Body

HTML Tag

The <html> </html> tag tells the browser that this is an HTML document.

The html element is the outermost element in HTML.

<!DOCTYPE> Declaration

The <!DOCTYPE> declaration represents the document type, and helps browsers to display web pages correctly.

```
<!DOCTYPE html>
<html>
<head>
   <title></title>
<meta charset="utf-8" />
</head>
<body>
</body>
</html>
```

Head Tag

The <head></head> element is a container for metadata (data about data) and is placed between the <html> tag and the <body> tag.

<head> element can include :

➢ **<title></title>**

➢ **<style></style>**

➢ **<link/>**

➢ **<script></script>**

➢ **<meta> </meta>tags and more**

Title Tag

<title> will be shown on the browser toolbar and also provides a title for the page when it is added to favorites.

```
<!DOCTYPE html>
<html>
  <head>
    <title> Infoway Technologies, PUNE</title>
  </head>
</html>
```

Meta Tag

- Metadata is data (information) about data.

- Give a short description about the document. This can be used by various search engines while indexing your webpage for searching purpose.

- <meta> are typically used to specify page description, keywords, author of the document, last modified, and other metadata.

- Metadata will not be displayed on the page, but will be machine parsable.

Attribute	Value	Descritpion
charset	character_set	Specifies the character encoding for the HTML document
content	text	Gives the value associated with the http-equiv or name attribute
http-equiv	refresh	Will refresh the document after specified seconds
name	application-name author description keywords viewport	Specifies a name for the metadata

```
<head>
 <meta charset="UTF-8">
</head>
```

```html
<head>
    <meta name="author" content="Author Name">
    <meta name="description" content="HTML Tutorials">
    <meta name="generator" content="Netbeans">
    <meta name="keywords" content="HTML, meta tag, tag
        reference">
    <meta name="viewport" content="width=device-width,
        initial-scale=1.0">
</head>


    <head>
     <meta http-equiv="refresh" content="30">
    </head>
```

Body Tag

The body element defines the document's body.

The <body> tag creates the body section of the document, which contains the actual visible content of the document.

Attributes:-

bgcolor: used to set background color.

   <body bgcolor="color"></body>

text: Used to control the color of all the normal text in the document. The default color for text is black.

   <body text="color"></body>

Heading Tag

<h1> to <h6> tags are used to define HTML headings.

<h1> defines the most important heading.

<h6> defines the least important heading.

```
<h1>Heading 1</h1>
<h2>Heading 2</h2>
<h3>Heading 3</h3>
<h4>Heading 4</h4>
<h5>Heading 5</h5>
<h6>Heading 6</h6>
```

Font Size:-

h1 is 32px

h2 is 24px

h3 is 20.8px

h4 is 16px

h5 is 12.8px

h6 is 11.2px

Paragraph Tag

The <p> tag defines a paragraph.

The p element automatically creates some space before and after itself. The space is automatically applied by the browser, or you can specify it in a style sheet.

<p> Paragraph text… </p>

Attribute	Description
Align	Left/right/center/justify
contenteditable	Specifies whether the content of an element is editable or not
tabindex	Specifies the tabbing order of an element

HTML Code

```
<P ALIGN="left"> This paragraph is
left aligned. </P>

<P ALIGN="CENTER"> This is a
centered paragraph. </P>

<P ALIGN="RIGHT"> This paragraph
is right aligned. </P>
```

Browser Display

This paragraph is left aligned.

This is a centered paragraph.

This paragraph is right aligned.

br and hr tag

**
 tag inserts a single line break.**

<hr > tag creates a horizontal line in an HTML page. Used to separate content in an HTML page.

Attribute	value	Description
align	left, right, center	Specifies the alignment of a <hr> element
size	pixels	Height of a <hr> element
width	pixels %	Width of a<hr> element
noshade	noshade	It display in one solid color instead of a shaded color

Preformatted text Tag

<pre> tag defines preformatted text.

Ex:

<pre>

  Hello

  Welcome

     to Infoway!!

</pre>

Text formatting tags

- **tag is used to bold content.**

- <big> Defines big text .</big>

- *Define Emphasized text*

- <small> Defines small text </small>

- _{subscripted text}

- ^{superscripted text}

- **tag is used to bold content.**

- <i> *tag is used to italic content.* </i>

- <u> <u>tag is used to underline content</u>. </u>

- <q> tag is used to quote then content. </q>

div Tag

➢ **The <div> tag defines a division or a section in an HTML document. It is used to group block elements to format them with CSS.**

<div> tags goes here </div>

Attribute	Description
Align	Left/right/center/justify

span Tag

 tag is used to group inline -elements.

<p> Hello World! </p>

Div vs. Span

The difference between span and div is that span element is in-line and usually used for a small chunk of in-line HTML.

Whereas a div element is block-line (which is basically equivalent to having a line break before and after it) and used to group larger chunks of code.

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.
- default font size in most browsers is 16px.

Not Supported in HTML5.

Attribute	Description
color	Specifies color of text
face	Specifies the font of text
size	Specifies the size of text

List Tag

<ol> tag defines an ordered list. An ordered list can be numerical or alphabetical.

Attributes:

Reversed: Specifies that the list order should be descending (9,8,7...)

Start : Specifies the start value of an ordered list

Type : 1,A,a,i,I

Ex.
                Jhon
                Sara
                Smith

<ul> tag defines an unordered (bulleted) list**.**

Attribute:

Type: disc, square, circle

Ex.

Coffee
Tea
Milk

Definition List

<dl> tag defines a description list. The <dl> tag is used in conjunction with <dt> (defines terms/names) and <dd> (describes each term/name).

Ex.

```
<dl>
        <dt>Term 1</dt>
        <dd>This is the definition of the first term.</dd>
        <dt>Term 2</dt>
        <dd>This is the definition of the second term.</dd>
</dl>
```

Table Tag

<table> tag defines an HTML table.

Syntax: <table>….</table>

Attribute	Value	Description
align	left, right, center	Specifies alignment of a table
bgcolor	colorname	Specifies background color for a table
border	pixels	Specifies width of the borders around a table
width	pixels %	Specifies the width of a table
cellpadding	pixels	Specifies the space between the cell wall and the cell content
cellspacing	pixels	Specifies the space between cells

th Tag

<th> tag defines a header cell in an HTML table.
Syntax: <th>…..</th>

Attribute	Value	Description
align	left, right, center, justify	Aligns the content in a cell
valign	top, middle, bottom	Specifies vertical align the contents in a cell
bgcolor	colorname	Specifies the background color of a cell.
colspan	number	Sets the number of columns a cell should span
rowspan	number	Sets the number of rows a cell should span
height	pixels %	Sets the height of a cell
width	pixels %	Sets the width of a cell

tr Tag

<tr> tag defines a row in an HTML table. A <tr> element contains one or more <th> or <td> elements.

Syntax: <tr>…..</tr>

Attribute	Value	Description
align	left, right, center, justify	Aligns the content in a table row
valign	top, middle, bottom	Specifies vertical align the contents in a table row
bgcolor	colorname	Specifies the background color of a table row

Caption Tag

The <caption> tag defines a table caption. This can either appear above or below the table.

Syntax: <caption>……</caption>

Attribute	Value	Description
align	left, right, top, bottom	It defines the alignment of a caption

td Tag

<td> tag defines a standard cell in an HTML table. The <td> tag is used to mark up individual cells inside a table row.

Syntax: <td>…..</td>

Attribute	Value	Description
align	left, right, center, justify	Aligns the content in a cell
valign	top, middle, bottom	Specifies vertical align the contents in a cell
bgcolor	colorname	Specifies the background color of a cell.
colpan	number	Sets the number of columns a cell should span
rowspan	number	Sets the number of rows a cell should span
height	pixels %	Sets the height of a cell
width	pixels %	Sets the width of a cell

```
<table border = "1">
<thead>
    <tr><th colspan="2">Table Header (thead)</th></tr>
</thead>
<tbody>
    <tr>
    <td rowspan="2">Cell 1 - part of tbody</td>
    <td>Cell 2 - part of tbody</td>
    </tr>
    <tr>
    <td>Cell 3 - part of tbody</td>
    </tr>
</tbody>
<tfoot>
    <tr><th colspan="2">Table Footer (tfoot)</th></tr>
</tfoot>
```

Table Header (thead)	
Cell 1 - part of tbody	Cell 2 - part of tbody
	Cell 3 - part of tbody
Table Footer (tfoot)	

Img Tag

<img> tag is used to add image in web page. It is empty tag.

Syntax: <img src="URL">.....</img>

<img src="flower.jpg" alt="Rose" height="42" width="42">

Attribute	value	Description
alt	text	Specifies an alternate text for a image
src	URL	Specifies the URL of an image
align	top, bottom, middle, left, right	Specifies alignment of an image
border	pixel	Specifies the width of the border around an image
height	pixel	Specifies height of an image
width	pixel	Specifies width of an image
hspace	pixel	Specifies whitespace on left and right side of an image
vspace	pixel	Specifies whitespace on top and bottom of an image

Figure and figcaption Tag

<figure> tag used to mark up a photo in a document.

<figcaption> tag defines a caption for a <figure> element.

```
<figure>
    <img src="/images/Infoway-1.jpg" alt="Infoway" width="250" height="250">
    <figcaption>Fig1. –Infoway.</figcaption>
</figure>
```

HTML Entities

Some characters are reserved in HTML.

If you use the less than (<) or greater than (>) signs in your text, the browser might mix them with tags.

Character entities are used to display reserved characters in HTML.

Result	Description	Entity Name	Entity Number
	non-breaking space		
<	less than	<	<
>	greater than	>	>
&	ampersand	&	&
"	double quotation mark	"	"
'	single quotation mark (apostrophe)	'	'
¢	cent	¢	¢
£	pound	£	£
¥	yen	¥	¥
€	euro	€	€
©	copyright	©	©
®	registered trademark	®	®

Anchor Tag

The <a> tag defines a hyperlink, which is used to link from one page to another.

Types of Hyperlinking:

➢ **External Hyperlinking:** links that point to a separate document (To create a link to another document, by using href attribute)

➢ **Internal Hyperlinking:** links that point to content within the same document.(To create a bookmark inside a document, by using the name attribute.)

Attribute	Descritpion
href	Specifies the URL of the page the link goes to
target	_blank, _parent, _self, _top, framename
download	Specifies that the target will be downloaded when a user clicks on the hyperlink
type	Specifies the media type of the linked document
accessKey	Specifies a shortcut key to activate/focus an element [Alt] + *accesskey*

Marquee Tag

An HTML <marquee> is a scrolling piece of text.

Attribute	Value	Description
behavior	scroll, slide, alternate	It defines the scrolling type.
direction	Up, down, left, right	It sets the direction for the scrolling content.
Height	pixels or %	pixels or %It defines the marquee's height.
loop	number	Specifies how many times to loop. The default value is INFINITE, which means that the marquee loops endlessly.
scrolldelay	seconds	Defines how long to delay between each jump.(seconds)
scrollamount	number	It defines the scrolling amount at each interval in pixels. Default value is 6.
bgcolor	rgb(x,x,x),#xxxxxx colorname	It is used to give a background color.

<marquee>
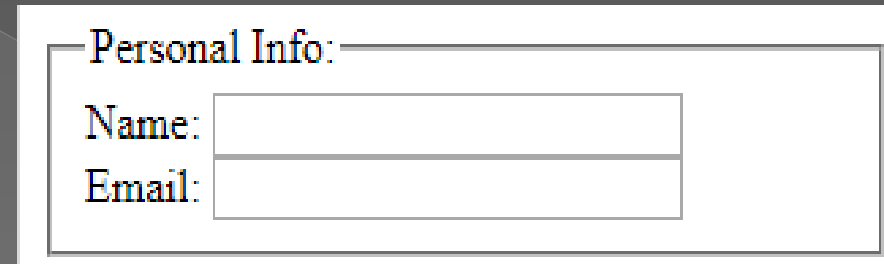This is the example of marquee…
</marquee>

Fieldset Tag

<fieldset> tag is used to group related elements in a form.
The <fieldset> tag draws a box around the related elements.

<legend> tag defines a caption for the <fieldset> element.

```
<fieldset>
  <legend> Personal Info: </legend>
    Name:  <input type="text"><br/>
    Email: <input type="text">
</fieldset>
```

To Sum Up!!

- **What is HTML – HyperText Markup Language**
- **Why HTML is used – Used to create Web Page, easy, platform independent, support scripting language etc.**
- **HTML Page Structure - Three Sections (Comment, Head an Body)**
- **HTML Element & Attribute**
- **HTML Tag & Types of Tag - which provide instructions for how information will be processed or displayed on a web page.**
- **Basic HTML Tags - html, head, body, title, meta, Heading, paragraph, div, span, br, hr, pre etc.**
- **Text Formatting Tags – b, i, u, strong, sub, sup, big, small, font etc.**
- **List Tags – ol, ul and definition list**
- **Table – tr, td, th, caption and all attributes**
- **Img tag – To display image**
- **Anchor tag - for hyperlinking**
- **HTML Entities**
- **Marquee Tag**
- **FieldSet Tag**

Quiz

Q1. It is used to display image

A. <image link="flower.jpg">
B. <img src="flower.jpg">
C. <img link="flower.jpg">
D. <img source="flower.jpg">

Answer: B
     <img src="flower.jpg">

Q2. What is the correct HTML for creating a hyperlink?

A. A

B. <a>B

C. Infoway

D. Infoway

Answer: C
     Infoway

Q3. <b> tag makes the enclosed text bold. What is other tag to make text bold?

A. <strong>
B. <dar>
C. <black>
D. <emp>

Answer: A
    <strong>

Q4. Dynamic web page

A. is same every time whenever it displays
B. generates on demand by a program or a request from browser
C. both (a) and (b)
D. none of the mentioned

Answer: B
generates on demand by a program or a request from browser

Q5. Tag removed from the HTML 5.0

A.   **<P>**

B.   **<aside>**

C.   **<font>**

D.   **<nav>**

Answer: C
       <font> tag

Web Programming Technologies

HTML Forms & HTML5 Elements
Session-03

Harshita Maheshwari

Agenda for Today's Session

- ➢ Form tag
- ➢ Form tag attributes
- ➢ DOM
- ➢ HTML Form Controls
- ➢ Validations for input elements
- ➢ iframe
- ➢ HTML5 New Elements
- ➢ Audio and Video
- ➢ Canvas
- ➢ HTML5 Geo-Location

Form Tag

<form> tag is used to create an HTML form for user input.
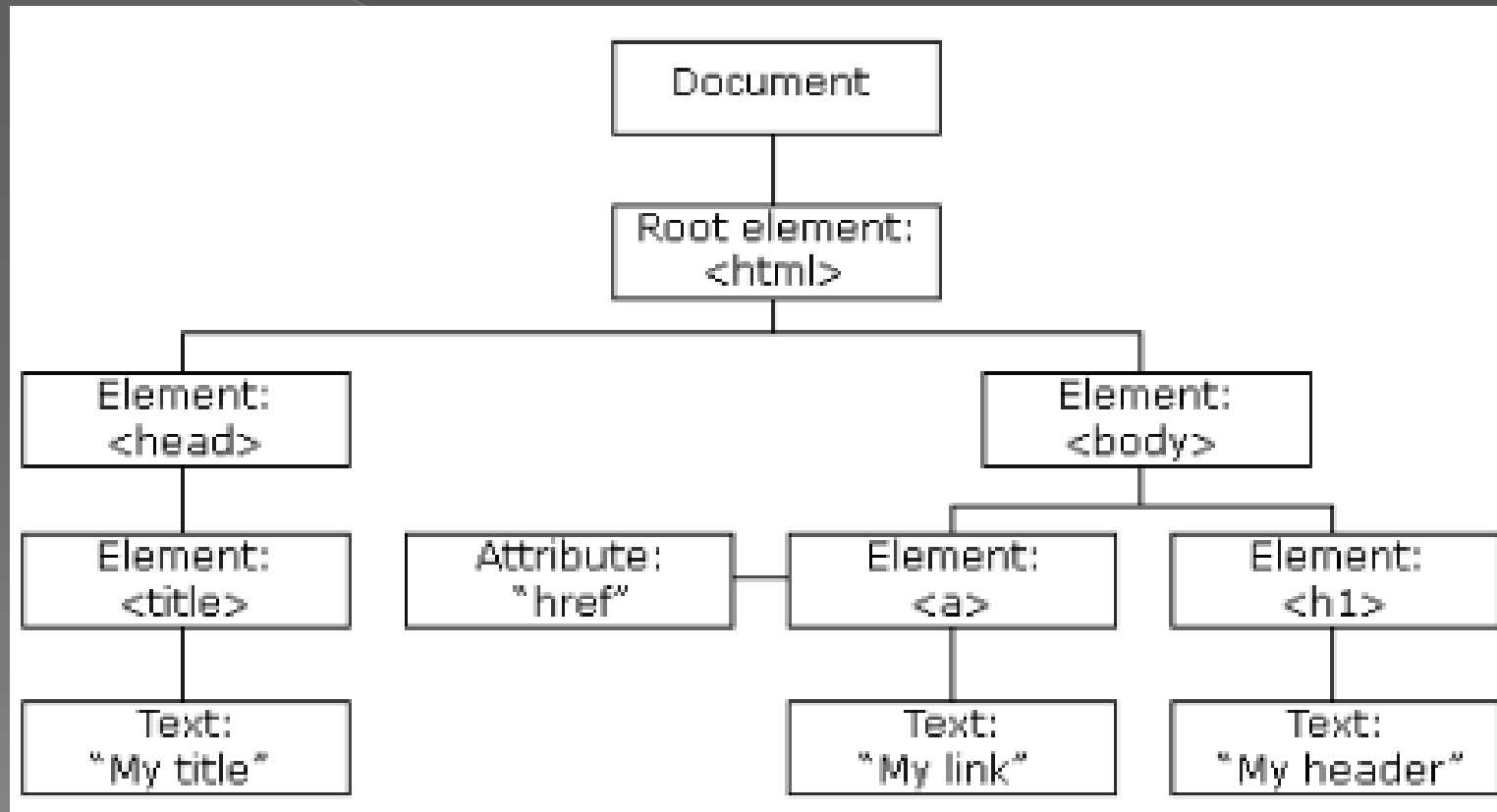The <form> element can contain one or more of the following form elements:
<input>   **<textarea>** **<button>**
<select>   **<fieldset>**   **<label>**

Attribute	Description
Action	URL
Method	Get, Post
Name	Specifies the name of a form
enctype	application/x-www-form-urlencoded, multipart/form-data text/plain
Autocomplete	On,off
novalidate	specifies that the form data should not be validated when submitted.
Target	_blank, _self, _parent, _top

GET	POST
Parameters remain in browser history because they are part of the URL	Parameters are not saved in browser history.
Can be bookmarked.	Can not be bookmarked.
application/x-www-form-urlencoded	multipart/form-data or application/x-www-form-urlencoded Use multipart encoding for binary data.
only ASCII characters allowed.	No restrictions. Binary data is also allowed.
GET is less secure compared to POST because data sent is part of the URL. So it's saved in browser history and server logs in plaintext.	POST is a little safer than GET because the parameters are not stored in browser history or in web server logs.
Restrictions on form data length	No restrictions
GET method should not be used when sending passwords or other sensitive information.	POST method used when sending passwords or other sensitive information.
GET method is visible to everyone (it will be displayed in the browser's address bar) and has limits on the amount of information to send.	POST method variables are not displayed in the URL.
Can be cached	Not cached

HTML DOM

When a web page is loaded, the browser creates a **Document Object Model** of the page.
The HTML DOM model is constructed as a tree of Objects:

Input tag

<input> tag specifies an input field where the user can enter data.

Attribute	Description
autofocus	Specifies that an <input> element should automatically get focus when the page loads
checked	Specifies that an <input> element should be pre-selected when the page loads
Name	Specifies the name of an <input> element
placeholder	Specifies a short hint that describes the expected value of an <input> element
readonly	Specifies that an input field is read-only
Required	Specifies that an input field must be filled out before submitting the form
Value	Specifies the value of an <input> element
Pattern	specifies a regular expression that the <input> element's value is checked against.
min and max	specify the minimum and maximum values for an <input> element
Type	specifies the type <input> element to display
id	Specifies the id of an <input> element

Type attribute

Type attribute specifies the type <input> element to display.

The following are the type attribute values:

Button	Checkbox	Color	Date
Datetime	Email	File	Hidden
Image	Month	Number	Password
Radio	Range	Reset	Search
Submit	Text	Time	url

```
<form method="post" action="hello.html">
   First name: <input type="text" />
   Last name:  <input type="text" />
   Password:    <input type="password" />
   File Upload:<input type="file" />
   <input type="submit" value="Submit" />
</form>
```

Label tag

<label> tag defines a label for an <input> element.

Attribute	Value	Description
For	Element_id	Specifies which form element a label is bound to

<label for="male">Male</label>
 <input type="radio" name="gender" id="male" value="male">

checkbox and radio type

<input type="checkbox" name="hobby1" value="Music"> Music

<input type="radio" name="gender" value="male"> Male
<input type="radio" name="gender" value="female"> Female

File type

Attribute	value	Description
Accept	audio/* video/* image/* media_type	returns the value of the accept attribute of the file upload button.
Multiple	multiple	Sets or returns whether a user is allowed to select more than one file in the file upload field

`<input type="file" name="pic" accept="image/*">`

`<input type="file" name="img" multiple>`

Select Tag

<select> element is used to create a drop-down list.
<option> Returns a collection of all the options in a drop-down list

Property	Description
Multiple	Sets or returns whether more than one option can be selected from the drop-down list
Value	Sets or returns the value of the selected option in a drop-down list
required	Specifies that the user is required to select a value before submitting the form
Size	Defines the number of visible options in a drop-down list
name	Defines a name for the drop-down list

Optgroup tag

The <optgroup> is used to group related options in a drop-down list.

<select>

  <option selected disabled>Select Option</option>
     <optgroup label="Group1">
      <option value="Option1">Option1</option>
      <option value="Option2">Option2</option>
     </optgroup>
     <optgroup label="Group2">
      <option value="Option3">Option3</option>
      <option value="Option4">Option4</option>
     </optgroup>
</select>

Textarea Tag

Property	Description
Cols	Sets or returns the value of the cols attribute of a text area
Rows	Sets or returns the value of the rows attribute of a text area
maxLength	Sets or returns the value of the maxlength attribute of a text area
placeholder	Specifies a short hint that describes the expected value of a text area
Readonly	Specifies that a text area should be read-only
Required	Specifies that a text area is required/must be filled out

```
<textarea rows="4" cols="50">

</textarea>
```

Number and range type

Define a field for entering a number.
<input type="number" name="quantity" min="1" max="5">

Define a control for entering a number whose exact value is not important (like a slider control).
<input type="range" name="points" min="0" max="10">

Attributes:
max - specifies the maximum value allowed
min - specifies the minimum value allowed
step - specifies the legal number intervals
value - Specifies the default value

Iframe Tag

Tag specifies an inline frame.

An inline frame is used to embed another document within the current HTML document.

Attributes:

src
height
width
name

<iframe src="home.html"></iframe>

Audio Tag

<audio> tag defines sound, such as music or other audio streams.

Attribute	Description
autoplay	Specifies that the audio will start playing as soon as it is ready
Controls	Specifies that audio controls should be displayed (such as a play/pause button etc)
Loop	Specifies that the audio will start over again, every time it is finished
Muted	Specifies that the audio output should be muted
Src	Specifies the URL of the audio file

<audio controls>

<source src="media/CollegeDays.mp3">

</audio>

Video Tag

<video> tag specifies video, such as a movie clip or other video streams.

<video width="320" height="240" controls>
  <source src="media/collegedays.mp4" type="video/mp4">
</video>

Address Tag

The text in the <address> element usually renders in italic. Most browsers will add a line break before and after the address element.

<address>
* Written by:*
* Sachin Chougule.
*
* Visit us at: www.infowayltd.com
*
* Commerce Center, Rambaug Colony
*
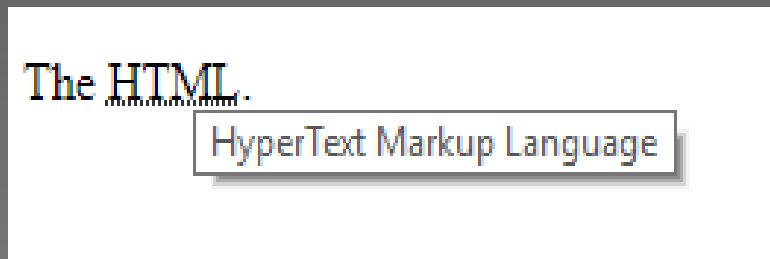* Paud Road, Opp. Krishna Hospital, PUNE-411038
*
* Maharashtra*
</address>

Abbr Tag

<abbr> tag defines an abbreviation or an acronym, like "Mr.", "Dec.", "ASAP", "ATM".

Ex.

The <abbr title="HyperText Markup Language">HTML</abbr>.

Details Tag

<details> tag specifies additional details that the user can view or hide on demand.

<summary> tag defines a visible heading for the <details> element.

```
<details>
  <summary> Copyright 2015-2016.</summary>
  <p>- by Infoway. All Rights Reserved.</p>
  <p>- All content and graphics on this web site are the
     property of the company Infoway. </p>
</details>
```
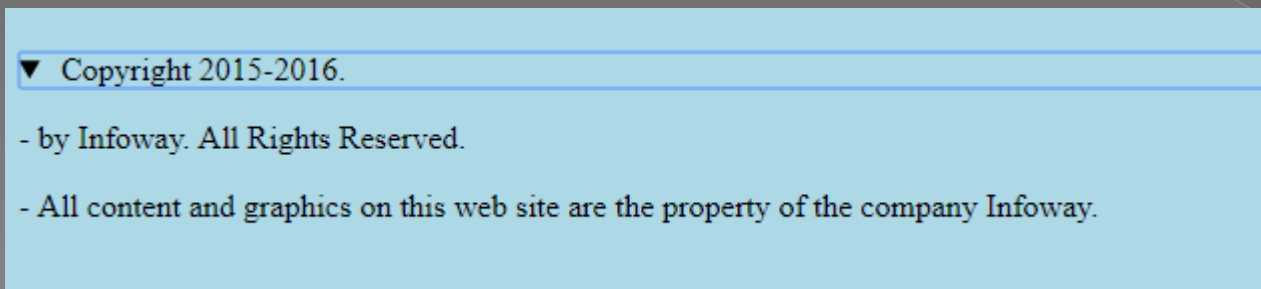
▼ Copyright 2015-2016.

- by Infoway. All Rights Reserved.

- All content and graphics on this web site are the property of the company Infoway.

nav tag

<nav> tag defines a set of navigation links.

```
<nav>
 <a href="#">Home</a>
 <a href="#">About Us</a>
 <a href="#">Contact Us</a>
</nav>
```

canvas Tag

The HTML5 <canvas> tag is used to draw graphics, on the fly, with JavaScript.

The <canvas> element is only a container for graphics. we must use a script to actually draw the graphics.

Canvas has several methods for drawing paths, boxes, circles, text, and adding images.

getContext() method returns an object that provides methods and properties for drawing on the canvas.

<canvas id="myCanvas" width="200" height="100" style="border:1px solid black;">
</canvas>

Geolocation tags

The HTML Geolocation API is used to get the geographical position of a user.

```
<script>
    var x = document.getElementById("demo");
    function getLocation() {
      if (navigator.geolocation) {
        navigator.geolocation.getCurrentPosition(showPosition);
      } else {
        x.innerHTML = "Geolocation is not supported by this browser.";
      }
    }

    function showPosition(position) {
      x.innerHTML = "Latitude: " + position.coords.latitude +
      "<br>Longitude: " + position.coords.longitude;
    }
</script>
```

To Sum Up!!

➢ **Form tag - Used to create forms like signup, login**

➢ **Form tag attributes – methods(GET & POST), action, enctype etc.**

➢ **DOM – Tree Structure is created When a web page is loaded**

➢ **HTML Form Controls – input, select, textarea, label etc.**

➢ **Validations for input elements – readonly, checked, required etc.**

➢ **Iframe – inline frame**

➢ **HTML5 New Elements – abbr, address, details, summary etc.**

➢ **Audio and Video**

➢ **Canvas - for drawing**

➢ **HTML5 Geo-Location – current location (longitude and latitude)**

Quiz

Q1. Which of the following tag automatically focus one particular form field in HTML5?

A. output

B. placeholder

C. autofocus

D. required

Answer: C
    autofocus

Q2 Which of the following method retrieves the current geographic location of the user?

A. geolocation.getCurrentPosition
B. geolocation.watchPosition
C. geolocation.clearPosition
D. None of the above.

Answer: A
        geolocation.getCurrentPosition

Q3 _____ contains the navigation menu, or other navigation functionality for the page

A. section
B. header
C. nav
D. aside

Answer: C
    nav

Q4. Which of the following attribute is used to display date/time content?

A. date

B. datetime

C. time

D. year

Answer: B

datetime

Q5. In html audio/video DOM, _____ sets or return whether the audio/video should be loaded when the page loads.

A. autoplay
B. buffered
C. preload
D. control

Answer: C
    preload

Thank you !!