

# Chapter : - 1

## (1) What is HTTP? Explain HTTP Request and Response.

- ❖ HTTP stands for **Hyper Text Transfer Protocol**.
- ❖ HTTP takes part in web browser and web server communication.
- ❖ The data communication starts with a request sent from a client and ends with response receive from web server.
- ❖ The client makes a request for desired web page by giving the URL in address bar.
- ❖ This request submitted to the web server and then web server gives the response to the web browser by returning the required web page.
  - A website URL entered in a web browser from a client.
  - Browser sends a request to the web server that hosts the website.
  - The web server then returns a response as a HTML or any other format to the browser.
  - Browser display the response from the server to the user.

### ❖ HTTP Request Structure: -

- General form:
  - <Start Line>
  - <Header Line>
  - <Blank Line>
  - <Message Body>
- Start line consist of three parts which are separated by a single space.
  - Request Method
  - Request URI
  - HTTP Version

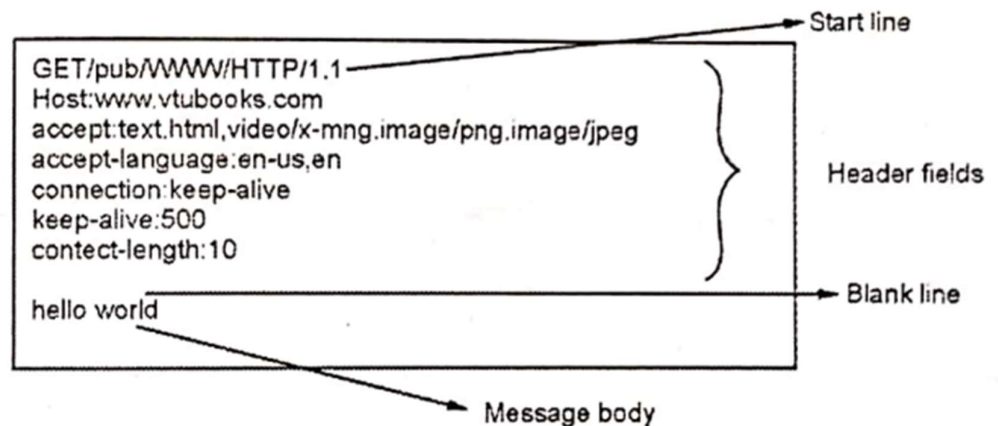
#### • **Request Method:**

- ◆ The method defines the CONNECT method which is used during the web browser and server communication.
- ◆ It is always written in upper case letters.
- ◆ The primary method in HTTP is GET.
- ◆ GET method is used when: -
  - You type URL in address bar.
  - When you click on some hyperlink.
  - When browser download images for display in HTML document.

#### • **Request URI: -**

- ◆ Stand for Uniform Resource Identifier.
- ◆ Used to identify name and resources used on the internet.
- ◆ It is a combination of URL and URN.

- ◆ Web address denotes the URL and specific name of the place and person or item denotes the URN.
- ◆ Every URI consist of two parts, the part before the colon: denotes the scheme and the part after colon depends upon the scheme.
- **HTTP Version: -**
  - ◆ The first HTTP version was HTTP/0.9 but the official version of HTTP was HTTP/1.1



### ❖ **HTTP Response Structure: -**

- General form:
  - <Start Line>
  - <Header Line>
  - <Blank Line>
  - <Message Body>

#### ➤ **Status Line: -**

HTTP version	Status code	reason phrase
--------------	-------------	---------------

- HTTP version denotes the HTTP version such as HTTP/1.1.
- Status code is a numeric code indicating type of response.
- Reason phrases is in the text string form and presents the information about status code.
  - 200 => OK
  - 201 => Created
  - 202 => Accepted
  - 301 => Moved permanently
  - 401 => Unauthorized
  - 403 =>Forbidden
  - 404 => Not found
  - 500 => Internal server error

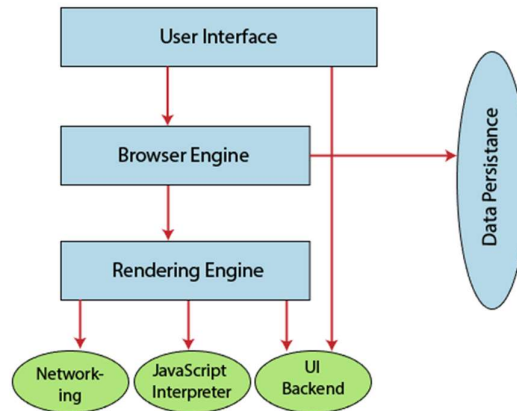
## (2) Explain Web Browser and Web Server.

Web Browser	Web Server
It is an application program that display world wide web documents.	It is a program that provide services to other programs called client.
It requests the server for the web documents and services.	It accepts, approves and responds to the request made by the web browser.
It acts as an interface between the server and the client and display the web document to the client.	It is a software or a system which maintain the web application, generate response and accept client data.
Components of web Browser is => <ul style="list-style-type: none"><li>❖ Controller</li><li>❖ Client Program</li><li>❖ Interpreters</li></ul>	Components of Web Server is => <ul style="list-style-type: none"><li>❖ Hardware</li><li>❖ Operating System</li><li>❖ Web server Software</li></ul>
Web browser sends HTTP request and get HTTP response.	Web server get HTTP request and send HTTP response.
No processing model exist for web browser.	Three processing models => Process, Thread and Hybrid Bases
It stores the cookies for different website.	It provides an area to store and organize the pages of the website.
Web browser installed on client computer.	Web server is a remote machine placed on other side of your network.
<b>EX.</b> Mozilla Firefox, Google Chrome, Microsoft Edge	<b>EX.</b> Apache server, NGINX, IIS

## (3) Difference between GET & POST.

GET	POST
In GET method we cannot send large amount of data.	In POST method we can send large amount of data.
GET request is less secure.	POST method is more secure.
GET method are stored in browser history.	POST method is not stored in browser history.
GET request can be bookmarked.	POST request cannot be bookmarked.
Not preferred to send sensitive information.	Used to send sensitive information.
It has length restrictions.	It does not have any length restriction.

#### (4) Explain Web Browser architecture.



- ❖ **User Interface:** - User interface is an area where the user can serve options like address bar, back button, forward button, menu, bookmarking and many other options to interact with web browser.
- ❖ **Browser Engine:** - It connects the UI and rendering engine as a bridge. It queries and manipulates the rendering engine based on inputs from several user interface.
- ❖ **Rendering Engine:** - It is responsible for displaying the requested content on the browser screen. It translates the HTML, XML and images which are formatted by using CSS. It generates the layout of the content and displays it on the browser screen. Although it can also display the other type of content by using different types of plugins or extensions.
  - Different browser uses different rendering engines:
    - **Internet Explorer uses Trident**
    - **Firefox uses Gecko**
    - **Chrome & Safari uses Web kit.**
- ❖ **Networking:** - Functionality of networking is to retrieve the URL using common internet protocols such as HTTP and FTP. It is responsible for maintaining all the aspects of internet communication and security. It may be used to cache a retrieved document; this will help for increasing the response time.
- ❖ **JavaScript Interpreter:** - It translates and executes the JavaScript code which is included in the website.
- ❖ **UI Backend:** - It is basically used to draw the widget like combo boxes and windows.
- ❖ **Data Persistence:** - This is a small database created on local drives of the computer where the browser is installed. The data storage manages user data such as bookmarks, cookies and preferences.

## **Chapter : - 2**

### **(1) Explain concept of effective web designing.**

#### **❖ Guidelines for Good Design: -**

- The website can be **viewed** on all the devices like Mobile, Computer, Laptop, Tablet.
- **Fonts are moderate size.** Most commonly used fonts are Times New Roman, Arial.
- **Color contrast** should not be more than three colors.
- **Font color** should be consistent throughout the website.
- **Navigation** from one page to another must be smooth. The user does not need to spend much time on thinking how to navigate from one page to another page.
- The webpage should be **loaded** up in few seconds.
- Website must be **compatible** in all the most commonly user web browsers.

#### **❖ Symptoms of Bad Design: -**

- **Hyperlinks** for referring some web pages are broken links.
- **Size of webpage** is not viewable in standard browser and user has to set width and height manually.
- **Use of Big fonts, unattractive color, big buttons.**
- **Use of pop-ups.**
- **Use of horizontal scroll bar.** Basically horizontal scroll annoys the user.
- **Due to Heavy animation and use of Images** there is load time problem for the webpage.
- **Wrong spelling.**
- **Plenty of music** is used for the web page.
- Website with no **Contact information.**

## (2) Explain Web design Goals (Principle).

❖ Following design goals are used for web designing:

- Simplicity
- Identity
- Consistency
- Robustness
- Navigability
- Visual Appeal
- Compatibility

➤ **Simplicity:** -

- The web application must be moderate and simple.
- It is a general tendency of web designer to provides lots of animations, huge amount of information and images This make website to slow to load So it is better to avoid this things.

➤ **Identity:** -

- Web design must be based on nature of web application.
- It is driven by the objective of web application, category of user using it.
- A web engineer must work to establish an identity for web application through the design.

➤ **Consistency:** -

- The contents of the web application should be constructed consistently.
- Text formatting, font style should be same over all the text document of the web application.
- Similarly, graphic design, color scheme and style must be identical over all the pages of the web application.

➤ **Robustness:** -

- The user always expects robust contents and functions of web application.
- Any required functionality should not be missing at all, id any function or content is missing or insufficient then that web application will fail.

➤ **Navigability:** -

- Navigation should be simple and consistent.
- The design of navigation should be predictable in nature.
- That means any new user should be able to use navigation links without any help.

➤ **Visual Appeal:** -

- The web applications are most visual and most dynamic and aesthetic in nature.
- There are various factors that contribute to visual appeal. Like look and feel of content, interface layout, color co-ordination, balance of text graphic and other media.

➤ **Compatibility:** -

- Web application can be used in variety of environment and configurations such as different browsers, internet connection types, OS.

### **(3) Describe the Web Designing issues.**

❖ **Browser Compatibility issue:** -

- One of the greatest challenges faced by web developer to designing web page which can be displayed properly in multiple browsers.
- Every browser contains a program called rendering engine. This program interprets the markup tags of your web document and displays the result in the browser. This logic of interpreting varies from browser to browser.
- Responsibility of web developer is to test the web page on as many browsers as possible to ensure that the work appears correctly as per the design.
- To settle this issue following guidelines must be adopted: -
  - Follow W3C Standards
  - Validate the code
  - Know your audience
  - Test your work in multiple browser and devices

### ❖ **Bandwidth:** -

- The term bandwidth means amount of data that can be carried from one point to another in a given period of time.
- The bandwidth is generally used to define the user's internet connection speed.
- The web pages get slowly displayed on browser if they contain large amount of graphics and animation. Usually user never prefer to view web page that are load slowly.
- Web designer must taste the execution of web pages from variety of connection speed.
- The iPhone, or other handset that are display the web pages have lower bandwidth than the home or business computer.

### ❖ **Cache:** -

- The term cache means the temporary storage area.
- The first time when user visit the website, entire contents including images, stylesheets and so on get downloaded on user's hard disk. The next time when user visit the website then browser checks whether any document related to this website is present in cache memory.
- Cache is the browser's temporary storage area for web pages and images.
- Thus, browser always try to load images from the cache instead of downloading it from web server.
- Browser cache is useful for displaying the frequently visited web pages more efficiently.

### ❖ **Display Resolution:** -

- Display resolution or screen resolutions representation of width and height of computer screen in pixels. The various screen resolutions are: -
  - 1024 x 768
  - 1280 x 800
  - 1280 x 1024
  - 1440 x 900
  - 1680 x 1050
  - 1366 x 768
- Most commonly used screen resolution is 1024 x 768.
- If a web browser maximized in a wide landscape screen, there appears large amount of horizontal layout space in web design.



**(4) What do you mean by planning a website?  
Discuss its objectives, Goals and target audience. OR  
Explain Points which should be consider for planning a website.**

❖ **Planning a website:** -

➤ For creating web project planning and process development are important activities. Web design should always start with planning.

➤ **Steps:** -

- Deciding the goals and objectives, client's expectations and user's need.
- Focusing the group for which the web project has to be developed.
- Perform the market research.
- Concept of development can be done by creating the prototypes.
- The creative design is created so that the developer can communicate with the user for understanding their requirements.

❖ **Objectives:** -

- Web project must be specific.
- The web project should be Measurable.
- The schedule of the web project must be attainable.
- There should be realistic approach for deciding the web project.
- It should be short time or should not be very long period.

❖ **Target Audience:** -

- Content of web are directly dependent upon the kind of user who are visiting the website. But it is observed that many web developer do not make research on identifying target user accurately.
- The web designer must find out what target user want to see on the website and what will make the users to purchase or use the service.
- **Some ways to finding your audience:** -

- Market Research: - It will help you to understand exactly what kind of audience is accessing your web page and what is its demand.
- Focus Groups: - Getting service from market research firm are costly. Hence, we can use another approach for identifying our target users. The focus group is a group of people who represent target user and target audience.

## ❖ **Development Process:** -

### ➤ Requirements & Specification: -

- In this phase requirements are collected from the clients.
- Requirements are nothing but list of customers need.
- It may include search facility, table menu, Specific navigation, particular color, branding requirements and so on.
- These requirements are analyzed and web development team prepares project specification that contains design requirements, page layout sketches, technical requirements and so on.

### ➤ Information Design & Taxonomy Creation: -

- In this section the designers prepare the structure of the site in such a way that the contents can be represented in most meaningful way and easy to navigate by the target user.
- Taxonomy is used for giving the section names and names to navigation links and menu system if the site.

### ➤ Graphic Design: -

- In this phase the design sketches and page mockup can be prepared for the site.
- These mockup page can be easily modified based on the suggestions to the create web page design.

### ➤ Content Development: -

- After complete stable design, the content development phase starts.
- In this phase all the technical activities such as content development, coding and validation are conducted.
- Some part of testing is done while loading the content and evaluating the performance.

### ➤ Quality assurance and user testing: -

- During this phase the development team performs various test such as cross browser compatibility, connectivity at different bandwidth, testing links, data format etc.
- Publishing & Promotion: -
  - During this stage, the web is published to the web or organization internet.
  - The client then begins to make the promotion of website.
- Outgoing Maintenance: -
  - This stage begins as soon as web site get activated.
  - The web content must be updated and kept up to date.
  - New section can be added based on the requirements.
  - The newer interactive features can be added to make the site more interactive.

#### ❖ Process of Publishing website: -

- Step 1: Choose web hosting service provider.
  - The service provider is a basically a company that hosts the web pages on web server, making them available to anyone who known the URL of the website.
  - Web hosting service can be available for hosting both personal and business websites.
  - The web host provides the internet access, email accounts and space for personal and business website.
- Step 2: Register Domain Name
  - The domain name basically indicates the actual location of the website files on the web server.
  - The domain names are managed by **INTERNET CORPORATION FOR ASSIGN NAMES AND NUMBERS. (ICANN)**
  - You can purchase domain name from vendors and then they register it with ICANN.
- Step 3: Upload files with File transfer Protocol
  - To publish, the web pages on the web you must send the web documents, images and other required files to web server. For that purpose, the FTP is used.
  - The software FTP client is used to transfer these files on the web page.

## **(5) What is navigation? discuss the characteristics of effective navigation. also write code of the html page to open a link in a new browser window?**

❖ Navigation system allow the user flexibility of movement from one page to another within website.

❖ Features: -

- There are many commonly used web browser such as chrome, Microsoft edge and so on. Open URL facility in these browsers allow to access the webpage directly. The back and forward option on the menu bar allows the user to move towards the web page recently viewed.
- The hyperlinks allow the user to navigate from one page to another. Certain colour of the hyperlink indicated whether corresponding page is visited or not. The unvisited links are in one colour and after using the hyperlinks their colours get changed. These help user to understand what link they visited.
- The web browser gives the prospective view to its user about the navigation. For instance, when user navigate using hyperlinks the destination links appear in the status bar of the web browser.

❖ Types of Navigation: -

### ➤ **Hierarchical Navigation System:**

- The information hierarchy is the primary navigation system.
- The user can traverse to the destination page from the main page by using the actual contents on the web page.

### ➤ **Global Navigation System:**

- In global navigation system greater vertical and lateral movement is possible throughout the entire site.
- At the page heart of this system there are some standards rules that help to navigate every level of the site.
- This kind of navigation is based on the rules.

➤ **Local Navigation System:**

- The local navigation system allows the user to move towards the sub sites from the main web page.
- **Ex.** User can view the details of particular product by using the product name or number.

❖ **Code of the HTML page to open link in new Page**

```
<nav>
  <a href="#" target="_blank">Home</a>
  <a href="#" target="_blank">About us</a>
  <a href="#" target="_blank">Services</a>
  <a href="#" target="_blank">Contact us</a>
</nav>
```

## Chapter: - 3

### (1) What is HTML form tag? Discuss different attribute of form tag.

- ❖ Forms are required to take input from the user who visited website.
- ❖ This form is used basically for the registration process. Logging into your profile on a website created or taking feedback from user.
- ❖ The information that is collected in the form that post data in backend application like PHP. So, the backend application will process the data received by them.
- ❖ There are many attributes are associated with form tags.
  - **Action Attribute:** It defines the which process to be performed when form is submitted, or it is a URI to process the form information. The action attribute value defines the web page where information proceeds. It can be .php, .jsp, .asp, etc.
  - **Method Attribute:** It defines the HTTP method which browser used to submit the form.
    - **Post:** We can use the post method attribute when we want to process the sensitive data as it does not display the submitted data in URL..
    - **GET:** Get value of method attribute is default value while submitting the form. But this is not secure as it displays data in URL after submitting form.
  - **Target Attribute:** Target attribute defines where to open the response after submitting the form.
    - **\_self:** Response will be display in current page only.
    - **\_blank:** Response will be load in new page.
  - **Autocomplete Attribute:** It is a newly added attribute of HTML5 which enables an input field to complete automatically. It has two values ON & OFF.
  - **Name Attribute:** It defines the name of an input element. The name and value attribute are included in HTTP request when we submit form. It is mandatory attribute without this form will not be submitted.
  - **Value Attribute:** It defines initial or default value of input field.
  - **Required Attribute:** It is a Boolean attribute which specifies that user must fill that filled before submitting form.

## **(2) Explain HTML, CSS, XHTML, XSL, XSLT, XML.**

### **❖ HTML:**

- Stands for Hyper Text Markup Language.
- HTML is a language for describing the structure of web pages.
- Used to publish online documents with heading, text, tables, list, photos, etc.
- Used to retrieve online information via hypertext links, at the click of a button.
- Used to design forms for conducting feedback, making reservation and ordering product etc.
- It includes spread-sheets, video clips, sound clips and other applications directly in their documents.

### **❖ CSS:**

- Stands for Cascading Style Sheets.
- It is a language for describing the presentation of web pages, including colour, layout, fonts.
- It allows one to adapt the presentation to different types of devices such as large screen or small screen.
- CSS is independent of HTML and can be used with any XML-based markup language.
- The separation of HTML & CSS makes it easier to maintain sites.

### **❖ XHTML:**

- Stands for Extensible Hyper Text Markup Language.
- XHTML is a variant of HTML that uses the syntax of XML.
- XHTML has all the same elements as HTML but syntax is slightly different.
- XHTML is a stricter than HTML.
- XHTML means HTML defined as an XML application.
- XHTML supported by all major browsers.

### **❖ XSL:**

- XSL stands for Extensible stylesheet Language.
- It is a styling language for XML just like CSS for HTML.
- In HTML, tags are predefined but in XML tags are not predefined.

❖ XSLT:

- Stands for XSL transformation.
- It is used to transform XML document into other formats like transforming XML into HTML.
- It is used to define transformation rules to be applied on the target XML document.
- XSLT processor takes XSLT stylesheet and applies transformation rules on the target XML document and then generate formatted document in the form of HTML or text format.

❖ XML:

- XML stands for Extensible Markup Language.
- XML is a markup language much like HTML.
- XML was designed to store and transport data.
- XML is a W3C recommendation.
- XML is designed to be self-descriptive.
  - It has sender and receiver information.
  - It has a heading.
  - It has a message body.

### (3) What is HTML table? Explain its attribute.

❖ HTML tables allow web developers to arrange data into row and columns.

❖ A table in HTML consist of table cells inside rows and columns.

❖ Each table cell is defined by <td> and a </td> tag.

❖ Each table row defined by <tr> and a </tr> tag.

❖ Each table header defined by <th> and a </th> tag.

❖ **Attributes:**

- **Border:** It is used in table tag to specify border.
- **Colspan:** If you make a cell span more than one column you can use the colspan attribute. It will divide one cell into multiple columns, and the number of columns depends on the value of colspan attribute.
- **RowSpan:** If you want to make cell span more than one row, you can use the rowspan attribute. If you divide cell into multiple rows. Number of divided rows depends on the value of rowspan attribute.



### INPUT:

```
<!DOCTYPE html>
<html>

<head>
  <title>Order and Unorder List</title>
  <style>
    table{border-collapse:collapse}
    th,tr {
      border: 1px solid black;
      padding: 20px;
    }
  </style>
</head>

<body>
  <table>
    <tr>
      <th colspan="2">65</th>
      <th colspan="2">40</th>
      <th rowspan="2">20</th>
    </tr>
    <tr>
      <th>Harsh</th>
      <th>Yash</th>
      <th>Smit</th>
      <th>Prayag</th>
    </tr>
  </table>
</body>

</html>
```

### OUTPUT:

65		40		20
Harsh	Yash	Smit	Prayag	

#### (4) What is meta-tag? Explain its use. Show how to achieve following function.

- A. Stop the page from being listed.
- B. Set an expiration date.
- C. Stop the browser from caching page.

- ❖ The <meta> tag defines metadata about an HTML document. Metadata is information about data.
- ❖ <meta> tags always go inside the <head> element, and are typically used to specify character set, page description, keywords, author name, and view report setting.
- ❖ Metadata will not be displayed on the page but is machine parsable.
- ❖ Metadata is used by browser (how to display content and reload page), search engines (keywords), and other web service.
- ❖ **Charset:** Specify the character encoding for HTML document.
- ❖ **Content:** Specifies value associated with the http-equiv or name.
- ❖ **http-equiv:** Provides an HTTP header for the information of content attribute.
- ❖ **Name:** Specifies a name for the metadata.

#### Ex.

- ❖ Keyword for search engines:

```
<meta name="keywords" content="HTML, CSS, JavaScript">
```

- ❖ Description for web page:

```
<meta name="description" content="Free Web tutorials for HTML and CSS">
```

- ❖ Setting the Viewport:

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

- Width part sets the width of the page to follow screen-width of the device which will vary depending on the device.
- Initial part sets the initial zoom level when page is first loaded by the browser.

- a) **Stop the page from being listed:** When you add “noindex” metatag to a webpage, it tells a search engine that even though it can crawl the page, it cannot add the page into its search index.

```
<META NAME="robots" CONTENT="noindex">
```

- b) **Set an Expiry date:** This <meta> element defines the expiration date of the document being indexed.

```
<meta http-equiv="Expires" content="Fri, 31 Dec 2004 23:59:59 GMT">
```

- c) **Stop the browser from caching page:**

```
<meta http-equiv="Pragma" content="no-cache" />
```

## (5) What are the key components of XML?

- ❖ The XML elements are the basic building block of the XML document.
- ❖ It is used as container to store text elements, attributes, media object, etc.
- ❖ Every XML document has at least one element, which is defined by start and end tags, or in the case of an empty element, it is defined by single empty tag.
- ❖ **SYNTAX:**

```
<element-name attributes> Contents...</element-name>
```

- Element-name: It is the name of element.
- Attributes: The attributes are used to define the XML element property and these attributes are separated by white space. It associates name with a value, which is string of characters.

## (6) What is CSS? Explain different ways to write CSS.

- ❖ CSS is used to set the style in web pages that contains HTML elements. It sets the background colour, font-size, font-family, colour etc.
- ❖ **Inline CSS:** Inline CSS contains the CSS property in the body section attached with element is known as inline CSS. This kind of style is specified within an HTML tag using the style attribute.

**EX:**

```
<!DOCTYPE html>
<html>
<head>
  <title>Inline CSS</title>
</head>
<body>
  <p style="color:#009900; font-size:50px;">
    Harsh Porwal
  </p>
</body>
</html>
```

- ❖ **External CSS:** External CSS contains separate CSS file which contains only style property with the help of tag attributes. CSS property written in a separate file with .css extension and should be linked to the HTML document using link tag.

**Ex:**

```
<!DOCTYPE html>
<html>
<head>
  <title>External CSS</title>
  <link rel="stylesheet" href="geeks.css"/>
</head>
<body>
  <div class="main"> Harsh</div>
  <div id="main2">Porwal</div>
</body>
</html>
```

- ❖ **Internal & Embedded CSS:** This can be used when a single HTML document must be styled uniquely. The CSS rule set should be within the HTML file in the head section.

**Ex:**

```
<!DOCTYPE html>
<html>
<head>
  <title>Internal CSS</title>
  <style>
    .main {
      text-align:center;
      color:green;
      font-size: 50px;
    }
    #main2{
      text-align: center;
      color: black;
      font-size: 50px;
    }
  </style>
</head>

<body>
  <div class="main"> Harsh</div>
  <div id="main2">Porwal</div>
</body>
</html>
```

## (7) What is FTP? Explain various commands in FTP.

- ❖ FTP stands for file transfer protocol.
- ❖ FTP is a standard internet protocol provided by TCP/IP used for transmitting the files from one host to another.
- ❖ It is also used for downloading the files to computer from other servers.
- ❖ Although transferring files from one system to another is very simple and straightforward, but sometimes it can cause problems.
- ❖ For example, two system may have different file convention. Two system may have different ways to represent data. Two system may have different directory structure. FTP protocol overcomes these problems by establishing two-connection between host. One connection is used for data transfer and another is used for the control connection.
- ❖ FTP is one of the fastest way to transfer the files from one computer to another computer.
- ❖ To access FTP server we need to login with username and password so we can say that FTP is more secure.
- ❖ FTP transfer size limit is 2GB and it doesn't allow you to transfer simultaneous transfer.

### Commands:

- **Append:** It is used to append two files.
- **Ascii:** It is used to set the file transfer mode to ASCII
- **Binary:** It is used to set the file transfer mode to binary.
- **Bye:** It is used to terminate the FTP session and exit.
- **Cd:** It is used to change the directory on the remote system.
- **Close:** It is used to terminate the FTP connection with remote system.
- **Delete:** It is used to delete file in the current remote directory.
- **Disconnect:** It is used to disconnect the FTP session.
- **Get:** It is used to copy a file from the server to the client device.
- **Help:** It is used to display the local help information.
- **Mkdir:** Used to make new directory within the current remote directory.
- **Rmdir:** Used to remove the directory in the local remote directory.

## (8) Explain HTML Tags.

- ❖ <p> : used to write paragraph.
- ❖ <body>: It is used to define body of HTML. Contain image, table, list, etc.
- ❖ <title>: It is used to define title of HTML document.
- ❖ <b>: It is used to specify bold content in HTML document.
- ❖ <h1> to <h6>: Used to write text as a heading.
- ❖ <strong>: Used to make text strong.
- ❖ <em>: Used to emphasize text.
- ❖ <a>: Tag defines hyperlink Used to link a URL or another page.  
`<a href="https://harshporwal.me" > Visit My Website! </a>`
- ❖ <img>: Used to embed image in HTML page.  
``
- ❖ <ul>: Used to make unordered list in HTML. Each element starts with <li>.  
We can modify its style using CSS (*list-style-type: square*).
- ❖ <ol>: Used to make ordered list in HTML. Each element starts with <li>.

```
<!DOCTYPE html>
<html>
<head>
  <title>Order and Unorder List</title>
</head>
<body>
  <b>This is Ordered list</b>
  <ol>
    <li>Harsh</li>
    <li>Yash</li>
  </ol>
  <b>This is Ordered list</b>
  <ul>
    <li>Harsh</li>
    <li>Yash</li>
  </ul>
</body>
</html>
```

### OUTPUT:

**This is Ordered list**

1. Harsh
2. Yash

**This is Ordered list**

- Harsh
- Yash

- ❖ Table tag: Refer Q.3
- ❖ Form tag: Refer Q.1

## (9) Differentiate Class and Id in HTML.

Class	ID
We can apply class to various element so that it could be served times on a single page.	The ID is a unique in a page, and we can only apply to one specific element.
Class element written using “.” Followed by name of class.	Id element written using “#” followed by name of ID.
We can attach multiple class selector to an element.	We can only attach only one ID selector to an element.
<b>Syntax:</b> <pre>.class {     } </pre>	<b>Syntax:</b> <pre>#id {     } </pre>
<code>&lt;p class = "name1"&gt;Harsh Porwal&lt;/p&gt;</code>	<code>&lt;p id = "name2"&gt;Harsh Porwal&lt;/p&gt;</code>

❖ For Example refer to Q.6 => Internal CSS.

## (10) What is Bootstrap?

- ❖ Bootstrap is the most popular HTML, CSS and JavaScript framework for developing a responsive and mobile friendly design.
- ❖ It is free to download and use.
- ❖ It is a front-end framework used for easier and faster web-development.
- ❖ It includes HTML and CSS based design templates for forms, button, tables, navigation, modals, image any many others.
- ❖ It can also use JavaScript plug-ins.
- ❖ It is very easy to use. Anybody having basic knowledge of HTML and CSS can use Bootstrap.
- ❖ It facilitates user to develop a responsive website.
- ❖ Responsive website which can automatically adjust itself to look good on all devices for smart phone, desktop, etc.
- ❖ Bootstrap provides basic structure with Grid System, link style, and background.
- ❖ It comes with the feature of global CSS settings, HTML element style and an advance grid system.
- ❖ It also contains lot of custom jQuery plugins.



## (11) Explain Positioning in CSS.

- ❖ The position property in CSS tells about the method of positioning for an element or an HTML entity.
- ❖ The positioning of an element can be done using top, right, bottom, left properties. These specify the distance of an HTML element from the edge of the viewport.
- ❖ There are five different types of position property available in CSS:
  - **Fixed**: Any HTML element with ***position: fixed*** property will be positioned fixed to the viewport. An element with fixed positioning allows it to remain at same position even we scroll the page.
  - **Static**: This method of positioning is set by default. If we don't mention the method of positioning for any element, the element has the ***position: static*** method by default. By defining this the top, bottom, left, right will not have any control over the element.
  - **Relative**: An element with ***position: relative*** is positioned relatively with the other elements which are sitting at top of it. An element with its position set to relative and when is adjusted using top, bottom, left, right will be positioned relative to its original position
  - **Absolute**: An element with ***position: absolute*** will be positioned with respect to its nearest non-static ancestor. The positioning of this element does not depend upon its siblings or the elements which are at the same level.
  - **Sticky**: Element with ***position: sticky*** and ***top: 0*** played a role between fixed & relative based on the position where it is placed. If the element is placed at the middle of the document, then when the user scrolls the document, the sticky element starts scrolling until it touches the top. When it touches the top, it will be fixed at that place in spite of further scrolling. We can stick the element at the bottom, with the bottom property.

## Chapter: - 4

### (1) Explain features of JavaScript and its syntax and types.

#### ❖ Features: -

- **Browser support:** For running java script browser does not need to use sum plugin. Almost all popular browser support JavaScript.
- **Structure Programming Syntax:** JavaScript support most commonly used structure language type syntax.
- **Semicolon:** It automatically inserted semicolon at the end of the statement, hence there is no need to write semicolon at the end of the statement.
- **Dynamic Typing:** It supports dynamic typing means data type is bound to a value not to the variable.
- **Runtime Evaluation:** Using the **eval** function expression can be evaluated run time.
- **Support for Objects:** JavaScript is object oriented scripting language. It has a small number of in-built objects.
- **Function Programming:** In JavaScript function are used. One function can accept another function as a parameter. Even, One function can also assign to a variable like some data type.

#### ❖ Syntax: -

##### ➤ Direct Embedded:

```
<html>
<body>
  <script language = "javascript" type = "text/javascript">
    document.write("Hello World!")
  </script>
</body>
</html>
```

##### ➤ In-Direct Embedded: -

```
<html>
<body>
  <script type = "text/javascript" src = "index.js">>
</script>
</body>
</html>
```

## (2) Explain JavaScript Prompt.

- ❖ One of the important features of JavaScript is interactivity with user.
- ❖ There are three types of popup boxes used in JavaScript by which user can interact with browser.

➤ **Prompt Box: -**

- A prompt box is used when if you want the user to input value before entering page.
- When prompt box pup-up, user will have to click either “OK” or “Cancel” to proceed after entering input value.
- If user click “OK” the box returns input value. If user clicks “Cancel” box returns null value.

```
<!DOCTYPE html>
<html>
<body>
  <h2>JavaScript Prompt</h2>
  <button onclick="myFunction()">Try it</button>
  <p id="demo"></p>
  <script>
    function myFunction() {
      let text;
      let person = prompt("Please enter your name:", "Harry Potter");
      if (person == null || person == "") {
        alert("fsf")
      } else {
        text = "Hello " + person
      }
      document.getElementById("demo").innerHTML = text;
    }
  </script>
</body>
</html>
```

➤ **Confirm Box: -**

- A confirm box is used when you want the user verify something.
- When confirm box pop-up, the user will have to click either “OK” or “Cancel” to proceed.
- If user click “OK” it returns true. If user clicks “Cancel” it returns false.

```
<!DOCTYPE html>
<html>
<body>
  <h2>JavaScript Prompt</h2>
  <button onclick="myFunction()">Try it</button>
  <p id="demo"></p>
  <script>
    function myFunction() {
      let text;
      if(confirm("This is Confirm Prompt")){
        text="You pressed OK"
      }else{
        text="You pressed Cancel"
      }
    }
  </script>
</body>
</html>
```

➤ **Alert Box: -**

- In this type of pop-up some message will be displayed to user.

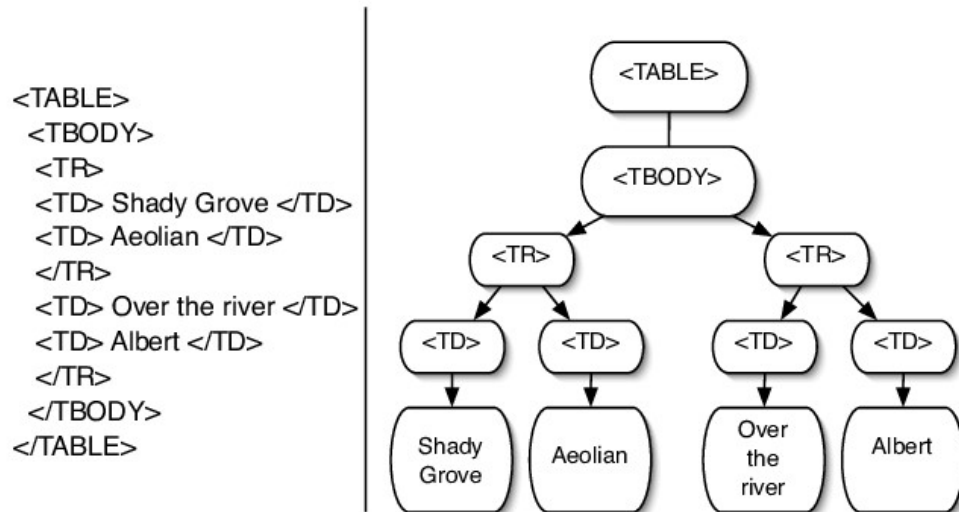
```
<!DOCTYPE html>
<html>
<body>
  <h2>JavaScript Prompt</h2>
  <button onclick="myFunction()">Try it</button>
  <p id="demo"></p>
  <script>
    function myFunction() {
      alert("This is alert Box")
    }
  </script>
</body>
</html>
```

**(3) Create HTML page with JavaScript which takes integer as an input and check whether number is prime or not.**

```
<html>
<head>
  <title>Prime Number Checker</title>
</head>
<body>
  <h1>Prime Number Checker</h1>
  <input type="text" id="numberInput">
  <button onclick="checkPrime()">Check</button>
  <p id="result"></p>
  <script>
    function checkPrime() {
      var number = parseInt(document.getElementById("numberInput").value);
      for (var i = 2; i <= number; i++) {
        if (number % i === 0) {
          document.getElementById("result").innerHTML = number + " is a prime number.";
          break;
        }
        else {
          document.getElementById("result").innerHTML = number + " is not a prime number.";
        }
      }
    }
  </script>
</body>
</html>
```

#### (4) Explain document object model (DOM) with example.

- ❖ Document Object Modeling (DOM) is for defining the standard for accessing and manipulating HTML, XML and other scripting language.
- ❖ It is the W3C recommendation for handling the structured document.
- ❖ **DOM Tree:** The documents in DOM are represented using a tree like structure in which every element is represented as a node. Hence the tree structure is also referred as DOM tree.
  - Every element in DOM tree is called node.
  - The topmost single node in a DOM is called root.
  - Every child node must have parent node.
  - Bottommost nodes that have no children are called leaf nodes.
  - The nodes that have common parents are called siblings.



- ❖ **Using DOM Methods:-** We can access or change the content of document by using various methods. Commonly used methods are as below.
  - getElementById: This method is used to obtain the specific element which is specified by some id within script.
  - createElement: Used to create an element node.
  - createTextNode: Used to creating text node.
  - createAttribute: Used to creating an attribute.
  - appendChild: For adding a new child to specified node.
  - removeChild: For removing child node of specific node.

## (5) Explain Event Handling in JavaScript.

- ❖ **Event:** - Event is an activity that represents a change in the environment.  
EX. mouse click, pressing a particular key of keyboard.
- ❖ **Event Handler:** - Event handler is a script that gets executed in response to those events. Thus event handler enable web document to respond the user activities through browser window.
- ❖ **Event Registration:** - The process of connecting event handler to an event is called event registration. Event registration can be done using two methods.
  - Assigning the tag attributes
  - Assigning the handler address to object properties
- ❖ Event specified in lower case and these are case-sensitive.
- ❖ Ex. `<input type="button" name="myBtn" onclick="My_Fun()"> </input>`
- ❖ There are different types of events :

Onblur	Onchange	Onclick
Ondblclick	onfocus	onkeyup
Onkeydown	Onkeypress	Onmousedown
Onmouseup	Onmousemove	onload
Onreset	Onsubmit	onselect

```
<!DOCTYPE html>
<html>
<head>
  <title>Event Handler</title>
</head>
<script>
  function myFun(){
    return alert("This is event handler example")
  }
</script>
<body>
  <button onclick="myFun()">Click Here </button>
</body>
</html>
```

## (6) Explain JSON in JavaScript.

- ❖ JSON stands for JavaScript Object Notation.
- ❖ Using JSON we can store and retrieve data. This is text based open standard format.
- ❖ It is extended from JavaScript language.
- ❖ It is text based, lightweight, data interchange format.
- ❖ It is language independent.
- ❖ It is easy to read and write.
- ❖ It is easy for machines to parse and generate.
- ❖ JSON object holds the key value pair.
- ❖ Each key represented as string and value can be of any datatype.
- ❖ The key value pair are separate by comma.
- ❖ Object is written within Curley braces { }.
- ❖ EX.

```
{  
  "id":0,  
  "name": "Database Managment System",  
  "desc": 3130703",  
  "syllabus":"https://mrharsh007.github.io/GtMaterialJson/DBMS.pdf",  
  "pdf":"https://mrharsh007.github.io/GtuMaterialJson/dbms.pdf",  
  "image": "https://mrharsh007.github.io/GtuMaterialJson/dbms.jpg"  
}
```



## **CHAPTER: 5**

### **(1) Explain PHP and WAMP server.**

#### ❖ **PHP:** -

- PHP was developed in 1994 by Apache Group.
- PHP stands for PHP: HyperText Preprocessor.
- PHP is server-side scripting language. It is mainly used for form handling and database access.
- It is free to download and use.
- PHP is a server-side scripting language embedded in CHTML. It is an alternative of ASP, ASP.NET, and JSP.
- The extension for PHP files is (.php), (.php3) or (.phtml)
- PHP has large number of library function which makes it flexible to develop the code in PHP.

```
<?php  
echo "Hello World!";  
?>
```

#### ❖ **WAMP:** -

- WAMP is a software for Microsoft windows. It is created by Romain Bourdon.
- WAMP stands for Windows, Apache, MySQL, Php.
- It is easy to download and to setup configuration in.
- It consist of Apache web server, OpenSSL for SSL support, MYSQL database and PHP programming language.
- WAMP server is utility designed to allow developers to create web applications and manage server and database.
- The utility comes with PhpMyAdmin and SQLiteManager to easily manage your database.
- Once WAMP server is installed, you have the possibility to add as many Apache, MySQL and PHP releases as you want.
- WampServer also has a tray icon to manage your server and its settings.

## (2) Difference Between Client and Server-Side Scripting.



Client Side	Server Side
Source code is visible to the user.	Source code is not visible to the user.
It usually depends on browser and its version.	In this any server side technology can be used and it does not depend on client
It runs on the user's computer.	It runs on webserver.
Does not provide security for data.	Provides more security to data.
HTML, CSS, JS are used	PHP, Python, Java are used
No need of interaction with the server.	It is all about interacting with the servers.
It reduces load on processing unit of the server.	It surge processing load on the server.

### (3) Write an output Program in PHP and explain Echo, Print, Printf and Print\_r.

#### ❖ Echo: -

- PHP echo is a language constructor not a function. Therefore, you don't need to use parenthesis with it. But if you want to use more than one parameter than it requires use of parenthesis.
- Echo is a statement, which is used to display the output.
- Echo does not return any value, we can only print statement.
- Echo is faster than print statement.

#### ❖ Print: -

- echo and print are more or less the same. They both used to output data to the screen.
- The difference between is echo has no return value while print has a return value 1 so it can be used in expression.
- Echo can take multiple parameters while print can take one argument.

#### ❖ Printf: -

- It is a function to send formatted output to the screen. The function prints the string inside quotation and parameters using (%) sign.
- %d = int, %f = float, %c=char
- `printf ("This is Integer:%d",$x);`

#### ❖ Print\_r: -

- It is used to print or display the content of a variable.
- It is essentially prints human-readable data about a variable.
- The value of a variable will be printed if it is a string, integer or a float.
- If you provide an array, it will show the values in a format that includes keys and elements.

Ex. `print_r(variable, isStore)`

- Variable: This is a argument that specifies which variable you should print.

- isStore: It is a Boolean parameter with the default value of FALSE that is used to save the result of the print\_r in PHP function in a variable instead of printing it.

**INPUT: -**

```
<!DOCTYPE html>
<html>
<body>

<?php
$x = 5985;
$y = "Harsh Porwal";
$z = 98.25;
$a = array("Harsh","Yash","Smit");
echo $x;
print "<br>";
echo $y;
print "<br>";
echo $z;
print "<br>";
print_r ($a);
print "<br>";
printf ("This is Integer:%d",$x);
print "<br>";
printf ("This is float:%f",$y);
print "<br>";
printf ("This is String:%c",$z);
?>

</body>
</html>
```

**OUTPUT: -**

```
5985
Harsh Porwal
98.25
Array ( [0] => Harsh [1] => Yash [2] => Smit )
This is Integer:5985
This is float:0.000000
This is String:b
```

#### (4) Explain Arrays and it's types in PHP. OR

#### Explain Indexed, Associative, Multidimensional arrays.

- ❖ Arrays is a collection of similar type of elements, but in PHP you can have the elements of mixed type together in single array.
- ❖ In PHP, each element has two parts key and value.
- ❖ The key represents the index at which the value of the element can be stored.
- ❖ The keys are positive integers that are in ascending order.
- ❖ There are two ways to create element in PHP.
  - The first way is use to construct the array.
    - `$MyArray = array(10,20,30)`
  - The second way is to assign the value directly to the array.
    - `$MyArray[0] = 10`
- ❖ **There are 3 types of an array: -**
  - Indexed Array: - PHP index is represented by number which start from 0. We can store number, string and object in the PHP array. All PHP array elements are assigned to an index number by default.

#### INPUT:

```
<?php
$ab=array("Harsh","Yash","Smit","Prayag");
echo "Names are: $ab[0], $ab[1], $ab[2]"
?>
```

OUTPUT: Names are: Harsh, Yash, Smit

- Associative Array: - We can associate name with each array elements in PHP using `=>` symbol. The associative arrays are special types of array in which the ID key is associate with value.

**INPUT:**

```
<?php
$salary=array("Harsh"=>"1,000","Yash"=>"2,000","Smit"=>"3,000");
echo "Harsh salary: ".$salary["Harsh"]."<br/>";
echo "Smit salary: ".$salary["Smit"]."<br/>";
?>
```

**OUTPUT:**

Harsh Salary: 1,000

Smit Salary: 3,000

- Multidimensional Array: - Multidimensional array is also known as array of arrays. It allows you to store tabular data in an array. PHP multidimensional array can be represented in the form of matrix which is represented by row \* column.

**INPUT:**

```
<?php
$salary=array(array("Harsh",1000),array("Yash",2000),array("Smit",3000));
echo $salary[0][0], " Salary is: ", $salary[0][1];
echo "<br>";
echo $salary[1][0], " Salary is: ", $salary[1][1];
?>
```

**OUTPUT:**

Harsh Salary is: 1000

Yash Salary is: 2000

## (5) Explain String and its manipulation in PHP.

- ❖ Various operation on strings are – finding length of the string, concatenating the two string, comparing two string, reverse string and so on.
- ❖ A String is a series of characters, where a character is the same as a byte.
- ❖ PHP support only 256-character set and so that it does not offer native Unicode support.
- ❖ PHP has various function that support these operations. Like strcmp(), strrev().

### INPUT:

```
<?php

$a="Hello!!";
$b="How are You ?";
echo "First String is: ", $a , "<br>";
echo "Second String is: ", $b , "<br>";
echo "Concatenated String is: ", $a,$b , "<br>";
echo "<strong> Comparing Two String</strong><br>";

// Use strcmp() function
if (strcmp($a,$b) == 0) {
    echo 'Both strings are equal';
}
else {
    echo 'Both strings are not equal';
}

echo "<br><strong> Reverse String</strong><br>";

//Use strrev() function
echo strrev($a);
echo "<br>";
echo strrev($b);

?>
```

### OUTPUT:

```
First String is: Hello!!
Second String is: How are You ?
Concatenated String is: Hello!!How are You
?
Comparing Two String
Both strings are not equal
Reverse String
!!olleH
? uoY era woH
```

**(6) Explain the use of following array in PHP.**

**a. \$\_REQUEST [ ]**

**b. \$\_SERVER [ ]**

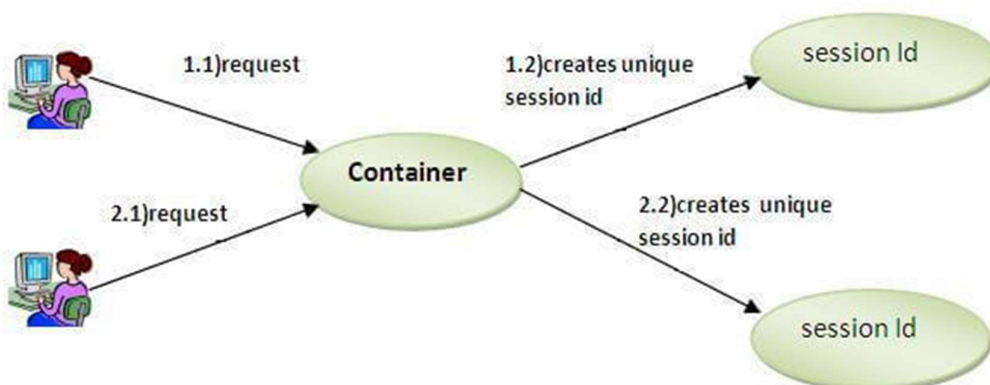
- ❖ **\$\_REQUEST**: It is a super global variable which is widely used to collect data after submitting html forms.
- ❖ **\$\_SERVER**: It is an array which holds information of headers, paths, script location. Web server creates the entries in the array.



## (7) Explain Session and Cookies in PHP.

### ❖ Session: -

- PHP session is used to store and pass information from one page to another page temporarily.
- When you work with an application, you open it, do some changes and then close it. This is much like a session. The computer knows who you are. It knows when you start the application and when you end. But on the internet there is one problem: the web server does not know who you are or what you do, because the HTTP address doesn't maintain state.
- Session variables hold information about one single user, and are available to all pages in one application.
- PHP session technique widely used in shopping website where we need to store and pass cart information **e.g.** username, product code, product name, product price, etc. from one page to another.
- PHP session are creates unique user id for each browser to recognize the user and avoid conflict between multiple browser.
- PHP session\_start( ) function is used to start the session. It starts or resume existing session. It returns existing session if session is created already. If session is not available it creates and return new session.



❖ **Cookies: -**

- Cookies is a small piece of information which is stored in a client browser. It is used to identify the user.
- Cookie is created at server side and saved to client browser. Each time when client send request to the server, cookie is embedded with request.
- A cookie store name and textual value. A cookie is created by some software system on the server.
- In every HTTP communication between browser and server a header is included. The header store the information about the message and also contains the cookies.
- Cookie in a website can be used to Remember the visitor so that the server can customize the site for the user.
- It is also used in shopping cart implementation so that items added to the cart will remain there even if the user leaves the site and then come back later.
- It is also frequently used to keep track of whether user has logged into a site.

➤ **Working: -**

- **Step 1:** User makes 1<sup>st</sup> request on website.
- **Step 2:** Page set cookies value as part of response.
- **Step 3:** HTTP response contains cookies in header.
- **Step 4:** Browser save the cookies in a text file and associate this file with website.
- **Step 5:** User makes another request to the website.
- **Step 6:** Browser reads cookie value from file for each subsequent request for website.
- **Step 7:** Cookie values travel in every subsequent HTTP request for that domain.
- **Step 8:** Server for website retrieves these cookie values from request header and uses them to customize the response.

➤ There are two types of cookies: **session cookies and persistent cookies.**

- A session cookie has no expiry date.
- Persistent cookies have an expiry date.

## (8) Explain Session and Cookies in PHP.

Cookie	Session
It is client-side files on a local computer that holds user information.	Session are server-side files that contains user data.
Cookies end on the time set by server.	When the user quits the browser or logout, then session is over.
It can store small amount of data.	It can store large amount of data
Maximum capacity of cookie is 4KB.	Maximum capacity of script is 128MB.
We don't need function to start the cookie.	We must use the session start () method to start session.
Cookies are not secured.	Session is more secured.
Cookies stored data in text file.	Session save data in encrypted form.