Chapter-1

WEB TECHNOLOGY

**1.1 Introduction**

As the term explains, technology that runs on the world wide is known as “web technology”. Web technology has given enterprise businesses a broad scope to enhance their task and database with safety and mobility, so that it can be accessed from any location, all that you’d need is internet.

Another term for web technology could be SaaS ( Software as a Service) . you’d need t to pay for the technology as and how you use it. You won’t need to install any software; all you’d need is a simple signup and few details to use the technology .

A web-based solution provides users the flexibility of accessing the technology just by typing the url in the browser. For example, when an organization needs to configure their company-owned Android devices in kiosk mode, the IT admin can based console. s/he can perform the task effortlessly from their laptop/desktop and moreover, have a birds-eye view on all devices with few simple clicks.

**1.1.1 Web Design**

Web design refers to the design of websites that are displayed on the internet. It usually refers to the user experience aspects of website development rather than software development web design used to be focused on designing websites for desktop browsers; however, since the mid-2010s, design for mobile and tablet browsers has become ever-increasingly important.

A web designer works on the appearance, layout, and, in some cases, content of a website. Appearance, for instance, relates to the colors, font, and images used. Layout refers to how information is structured and categorized. A good web design is easy to use, aesthetically pleasing, and suits the user group and brand of the website.

Many webpages are designed with a focus on simplicity, so that no extraneous information and functionality that might distract or confuse users appears.

As the Keystone of a web designer’s output is a site that wins and fosters the trust of the target audience, removing as many potential points of user frustration as possible is a critical consideration.

Two of the most common methods for designing websites that work well both on desktop and mobile are responsive and adaptive design.

In responsive design, content moves dynamically depending on screen size; in adaptive design. The website content is fixed in layout sizes that much common screen sizes.

**1.1.2 Programming Languages:**

A Programming language is used to control the actions of a machine. Such a language is a properly drafted or constructed language when it is designed in such a way that through it instructions can be communicated to a computer system. Ever since the invention of computers, thousands of programming languages have been created, and more are being created every year.

The universe of programming languages is wide and knowing all or learning each one of them is neither practical nor possible. If you are a developer who is interested in learning the most useful and popular ones, the you must first know which ones of the thousands of languages to learn.

Top 15 Programming languages:

1. Java Script
2. Java
3. Python
4. CSS
5. PHP
6. Ruby
7. C++
8. C
9. Shell
10. C#
11. Objective c
12. R
13. Vim L
14. Go
15. Perl

**1.2 HTML**

**1.2.1 What is HTML?**

* HTML stands for Hyper Text Markup Language
* HTML is the standard markup language for creating Web pages
* HTML describes the structure of a Web page
* HTML consists of a series of elements
* HTML elements tell the browser how to display the content
* HTML elements label pieces of content such as "this is a heading", "this is a paragraph", "this is a link", etc.

## 1.2.2 HTML Page StructureHTML Introduction - GeeksforGeeks

## 1.2.3 Why HTML?

## Originally, HTML was developed with the intent of defining the structure of document like headings, paragraphs, list, and so forth to facilitate the sharing of scientific information between researchers. Now, Html is being widely used to format web pages with the help of different tags available in html language.

## Html is must for student and working professionals to become a great software Engineer specially when they are working in web development Domain. I will list down some of the key advantages of learning HTML.

## 1.2.3.1 Create web site-

## You can create a website or customize an exiting web template if you know Html well.

## 1.2.3.2 Become a web designer-

## If you want to start a career as a professional web designer, Html and Css designing is a must skill.

## 1.2.3.3 Understand web –

## If you want to optimize your website, to boost its speed and performance, it is good to know Html to yield best results.

## 1.2.3.4 Learn other languages-

## Once you understands the basic of html the other related technologies like java script, php, or angular are become easier to understand.

## 1.2.4 Applications of HTML-

## As mentioned before, html is one of the most widely used language over the web. I’m going to list few of them here.

## 1.2.4.1 Web pages development-

## Html is used to create pages which are rendered over the web. Almost every page of web is having html tags in it to render its details in browser.

## 1.2.4.2 Internet Navigation-

## Html provides tags which are used to navigate form one page to another and is heavily used in internet navigation.

## 1.2.4.3 Responsive UI-

## Html pages now-a-days works well on all platform, mobile, tabs, desktop or laptops owing to responsive design strategy.

## 1.2.4.5 Offline support-

## html pages once loaded can be made available offline on the machine without any need of internet.

## 1.2.4.6 Game development-

## Html5 has native support for rich support for rich experience and is now useful in gaming development arena as well.

## 1.3 CSS

## 1.3.1 What is CSS

## ****C****ascading ****S****tyle ****S****heets, fondly referred to as ****CSS****, is a simply designed language intended to simplify the process of making web pages presentable. CSS allows you to apply styles to web pages. More importantly, CSS enables you to do this independent of the HTML that makes up each web page. CSS is easy to learn and understand, but it provides powerful control over the presentation of an HTML document.

**1.3.2 WHY CSS?**

* **CSS saves time:**You can write CSS once and reuse the same sheet in multiple HTML pages.
* **Easy Maintenance:**To make a global change simply change the style, and all elements in all the webpages will be updated automatically.
* **Search Engines:**CSS is considered a clean coding technique, which means search engines won’t have to struggle to “read” its content.
* **Superior styles to HTML:**CSS has a much wider array of attributes than HTML, so you can give a far better look to your HTML page in comparison to HTML attributes.
* **Offline Browsing:**CSS can store web applications locally with the help of an offline cache. Using this we can view offline websites.

**About CSS Files?**

* The Cascading Style Sheet file type, file format description, and Mac, Windows, Linux, Android, and iOS programs listed on this page have been individually researched and verified by the File Info team.
* We strive for 100% accuracy and only publish information about file formats that we have tested and validated.

**1.3.3 Advantages of CSS?**

* **CSS saves time** − You can write CSS once and then reuse the same sheet in multiple HTML pages. You can define a style for each HTML element and apply it to as many Web pages as you want.
* **Easy maintenance** − To make a global change, simply change the style, and all elements in all the web pages will be updated automatically.
* **Global web standards** − Now HTML attributes are being deprecated and it is being recommended to use CSS. So it's a good idea to start using CSS in all the HTML pages to make them compatible with future browsers.
* **Platform Independence** − The Script offer consistent platform independence and can support latest browsers as well.

**1.3.4 CSS Versions**

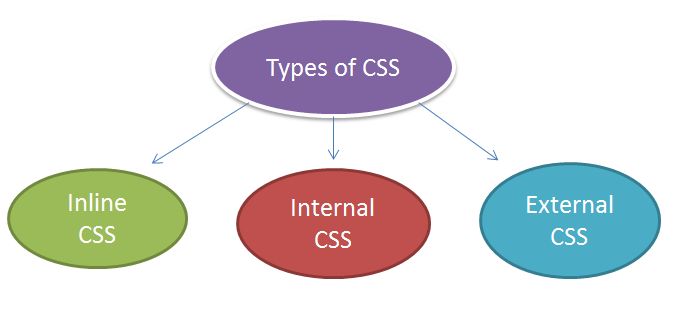
1. CSS1
2. CSS2
3. CSS3
4. CSS4  
   Version 4 comes with:-
   * CSS-Pro
   * CSS-Mobile

**Supported Browser:**

* Google Chrome
* Microsoft Edge
* Firefox
* Opera
* Safari

There are three types of CSS:

1. Inline CSS.
2. Internal CSS.
3. External CSS.



## ****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.

## ****Internal or 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 i.e the CSS is embedded within the HTML file.

## ****External CSS:**** External CSS contains separate CSS file which contains only style property with the help of tag attributes (For example class, id, heading, … etc). CSS property written in a separate file with. CSS extension and should be linked to the HTML document using ****link**** tag. This means that for each element, style can be set only once and that will be applied across web pages.

# **What is PHP?**

PHP (recursive acronym for PHP: Hypertext Preprocesser) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

* PHP is an acronym for "PHP: Hypertext Preprocessor".
* PHP is a widely-used, open source scripting language.
* PHP scripts are executed on the server.
* PHP is free to download and use.

**Example**

<html>

<title>Getting Started With PHP</title>

<body>

<?php

Echo Your first PHP code”;

?>

</body>

</html>

**PHP File Extensions**

*File extension and Tags* In order for the **server** to **identify** our **PHP** **files** and **scripts**, we must **save** the **file** with the **“.php” extension**. Older PHP file extensions include

* .php ml
* .php3
* .php4
* .php5
* .php7

**How PHP Works**

The following illustrates how PHP works:

## 

How PHP works:

* First, the web browser sends an HTTP request to the web server, e.g., index.php.
* Second, the PHP preprocessor that locates on the web server processes PHP code to generate the HTML document.
* Third, the web server sends the HTML document back to the web browser.

**Why PHP?**

* PHP runs on various platforms (Windows, Linux, Unix, Mac OS X, etc.)
* PHP is compatible with almost all servers used today (Apache, IIS, etc.)
* PHP supports a wide range of databases
* PHP is free. Download it from the official PHP resource: [www.php.net](http://www.php.net/)
* PHP is easy to learn and runs efficiently on the server side.

### **Applications of PHP Scripts**

Let us see how many ways PHP scripting is used.

#### Server-Side Scripting

Server side scripting is the first purpose of PHP. All you need to start working on a desktop PC with PHP is a PHP Parser, a webserver (such as Apache) and a web browser like Google Chrome.

#### **Command Line Scripting**

If you want to use PHP programming on Linux or task scheduler on Windows, then you don’t really need a web server, but only a PHP Parser. This is called “command line scripting”.

#### **Desktop Applications**

Although, PHP is not a suitable language for development of desktop applications, but it supports some advanced features like PHP-GTK which is basically an extension of PHP. PHP-GTK provides object-oriented user interface.

PHP programming enables you to choose not only the operating system of your choice but also allows you to have choices to use a web server that you are familiar with. It also enables beginners and professionals to write scripts in their own ways as it allows procedural as well as object-oriented programming.

PHP not only enables you to output HTML but also lets you include images, PDFs, videos, and sounds. PHP can auto-generate XHTML and XML files.

PHP provides support to protocols like LDAP, HTTP, COM, POP3, etc. It also supports WDDX complex data exchange.

**Dealing with forms:**

One of the most powerful features of php is the way it handles HTML forms. The basic concept that is important to understand is that any from elements will automatically be available to our PHP script.

**General Installation Considerations:**

For the first and most common form, we need three things: PHP itself, a web server and a web browser. We probably already have a web server(e.g. Apache on Linux and MacOS X,IIS on Windows).We may also rent webspace at a company.

**Security:**

PHP is the most criticized scripting language when it comes to security. A major chunk of developers and QA experts think PHP has no robust techniques to secure applications. The verdict has some ground too because PHP is the oldest and widely used language for web app development. But for a long time since PHP 5.6, we haven’t seen any major updates regarding security and hence the language faces some security issues.

PHP is as secure as any other major language.  PHP is as secure as any major server-side language. With the new PHP frameworks and tools introduced over the last few years, it is now easier than ever to manage top-notch security.

If we do a comparison PHP is evenly secured. Rails, Java, Java script, and other languages, all have had their vulnerabilities over the years. “If you find a language that has not had a vulnerability of some shape or form, You can write secure code in PHP perfectly well.