**TOOLS AND TECHNOLOGIES**

* Client side Scripting : HTML5, CSS3, JS, JQUERY
* Server side Scripting : PHP
* Database : MySQL server
* Development Environment : Dreamweaver CS3
* Operating system : windows 7

**HTML**

HTML abbreviates Hyper text markup language. HTML was created by Berners-Lee in late 1991 but "HTML 2.0" was the first standard HTML specification which was published in 1995. HTML 4.01 was a major version of HTML and it was published in late 1999. Though HTML 4.01 version is widely used but currently we are having HTML-5 version which is an extension to HTML 4.01, and this version was published in 2012. Recent version is HTML5.

* HTML stands for **H**yper **T**ext **M**arkup **L**anguage
* HTML is a **markup** language
* A markup language is a set of markup **tags**
* The tags **describe** document content
* HTML documents contain HTML **tags** and plain **text**
* HTML documents are also called **web pages**
* It runs on all browser
* It is used to construct a web page

It is not a programming language. Originally, HTML was developed with the intent of defining the structure of documents like headings, paragraphs, lists, 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.

As told earlier, HTML is a markup language and makes use of various tags to format the content. These tags are enclosed within angle braces **<Tag Name>**. Except few tags, most of the tags have their corresponding closing tags. For example **<html>** has its closing tag **</html>** and **<body>** tag has its closing tag **</body>** tag etc.

**CSS (Cascading style sheet)**

**Cascading Style Sheets** (**CSS**) is a style sheet language used for describing the look and formatting of a document written in a markup language. While most often used to style web pages and interfaces written in HTML and XHTML, the language can be applied to any kind of XML document, including plain XML, SVG and XUL.

CSS is designed primarily to enable the separation of document content from document presentation, including elements such as the layout, colors, and fonts.[[1]](http://en.wikipedia.org/wiki/Cascading_Style_Sheets#cite_note-1) This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple pages to share formatting, and reduce complexity and repetition in the structural content (such as by allowing for table less web design).

* **CSS** stands for **C**ascading **S**tyle **S**heets
* Styles define **how to display** HTML elements
* Styles were added to HTML 4.0 **to solve a problem**
* **External Style Sheets** can save a lot of work
* External Style Sheets are stored in **CSS files**

**JavaScript**

Java Script is the scripting language of the Web. JavaScript is used in millions of Web pages to add functionality, validate forms, detect browsers, and much more.

JavaScript, despite the name, is essentially unrelated to the Java programming language even though the two do have superficial similarities. Both languages use syntaxes influenced by that of C syntax, and JavaScript copies many Java names and naming conventions. The language's name is the result of a co-marketing deal between Netscape and Sun, in exchange for Netscape bundling Sun's Java runtime with their then-dominant browser. [Citation needed] The key design principles within JavaScript are inherited from the self and Scheme programming languages.

"JavaScript" is a trademark of Sun Microsystems. It was used under license for technology invented and implemented by Netscape Communications and current entities such as the Mozilla Foundation.

Due to the widespread success of JavaScript as a client-side scripting language for web pages, Microsoft developed a compatible dialect of the language, naming it JScript to avoid trademark issues. JScript added new date methods to fix the non-Y2K-friendly methods in JavaScript, which were based on java.util.Date.[5] JScript was included in Internet Explorer 3.0, released in August 1996. The dialects are perceived to be so similar that the terms "JavaScript" and "JScript" are often used interchangeably. Microsoft, however, notes dozens of ways in which JScript is not ECMA-compliant.

**What is JavaScript?**

* JavaScript was designed to add interactivity to HTML pages
* JavaScript is a scripting language
* A scripting language is a lightweight programming language
* JavaScript is usually embedded directly into HTML pages
* JavaScript is an interpreted language (means that scripts execute without preliminary compilation)
* Everyone can use JavaScript without purchasing a license

**What can a JavaScript do?**

* JavaScript gives HTML designers a programming tool - HTML authors are normally not programmers, but JavaScript is a scripting language with a very simple syntax! Almost anyone can put small "snippets" of code into their HTML pages
* JavaScript can put dynamic text into an HTML page - A JavaScript statement like this: document. Write("<h1>" + name + "</h1>") can write a variable text into an HTML page
* JavaScript can react to events - A JavaScript can be set to execute when something happens, like when a page has finished loading or when a user clicks on an HTML element
* JavaScript can read and write HTML elements - A JavaScript can read and change the content of an HTML element
* JavaScript can be used to validate data - A JavaScript can be used to validate form data before it is submitted to a server. This saves the server from extra processing
* JavaScript can be used to detect the visitor's browser - A JavaScript can be used to detect the visitor's browser, and - depending on the browser - load another page specifically designed for that browser
* JavaScript can be used to create cookies - A JavaScript can be used to store and retrieve information on the visitor's computer.

## *The Real Name is ECMA Script*

* JavaScript's official name is ECMA Script.
* ECMA Script is developed and maintained by the ECMA organization.
* ECMA-262 is the official JavaScript standard.
* The language was invented by Brendan Erich at Netscape (with Navigator 2.0), and has appeared in all Netscape and Microsoft browsers since 1996.
* The development of ECMA-262 started in 1996, and the first edition of was adopted by the ECMA General Assembly in June 1997.
* The standard was approved as an international ISO (ISO/IEC 16262) standard in 1998.
* The development of the standard is still in progress.

# JavaScript **How To:-**

The HTML <script> tag is used to insert a JavaScript into an HTML page.

<Html>  
<body>  
<script type=”text/JavaScript”>

document.Write("HelloWorld!") ;  
</script>  
</body>  
</html>

To insert a JavaScript into an HTML page, we use the <script> tag. Inside the <script> tag we use the type attribute to define the scripting language.So, the <script type="text/JavaScript"> and </script> tells where the JavaScript starts and ends:

## *Browsers Support:*

* Browsers that do not support JavaScript will display JavaScript as page content.
* To prevent them from doing this, and as a part of the JavaScript standard, the HTML comment tag should be used to "hide" the JavaScript.
* Just add an HTML comment tag <! -- Before the first JavaScript statement, and a --> (end of comment) after the last JavaScript statement, like this:
* JavaScript in the body section will be executed WHILE the page loads.
* JavaScript in the head section will be executed when CALLED.

## *Where to Put the JavaScript?*

JavaScript in a page will be executed immediately while the page loads into the browser. This is not always what we want. Sometimes we want to execute a script when a page loads, other times when a user triggers an event.

## *Scripts in <head>*

Scripts to be executed when they are called, or when an event is triggered, go in the head section. If you place a script in the head section, you will ensure that the script is loaded before anyone uses it.

## *Scripts in <body>*

Scripts to be executed when the page loads go in the body section. If you place a script in the body section, it generates the content of a page.

## *Using an External JavaScript*

If you want to run the same JavaScript on several pages, without having to write the same script on every page, you can write a JavaScript in an external file. Save the external JavaScript file with a .js file extension. The external script cannot contain the <script> tag. To use the external script, point to the .js file in the "src" attribute of the <script> tag:

# **Overview of PHP**

**History**

The origins of PHP date back to 1995, when an independent software development contractor named Rasmus Lerdorf developed a Perl/CGI script that enabled him to know how many visitors were reading his online résumé. His script performed two tasks: logging visitor information, and displaying the count of visitors to the Web page. Because the Web as we know it today was still young at that time, tools such as these were nonexistent, and they prompted e-mails inquiring about Leadoff’s scripts. Lerdorf thus began giving away his toolset, dubbed Personal Home Page (PHP).

The clamor for the PHP toolset prompted Lerdorf to begin developing additions to PHP, one of which converted data entered in an HTML form into symbolic variables that allowed users to export them to other systems. To accomplish this, he opted to continue development in C code rather than Perl. Ongoing additions to the PHP toolset culminated in November 1997 with the release of PHP 2.0, or Personal Home Page — Form Interpreter (PHP-FI). As a result of PHP’s rising popularity, the 2.0 release was accompanied by a number of enhancements and improvements from programmers worldwide.

The new PHP release was extremely popular, and a core team of developers soon joined Lerdorf. They kept the original concept of incorporating code directly alongside HTML and rewrote the parsing engine, giving birth to PHP 3.0. By the June 1998 release of version 3.0, over 50,000 users were using PHP to enhance their Web pages.

Development continued at a hectic pace over the next two years, with hundreds of functions being added and the user count growing in leaps and bounds. At the beginning of 1999, Net craft reported a conservative estimate of a user base surpassing 1,000,000, making PHP one of the most popular scripting languages in the world. Its popularity surpassed even the greatest expectations of the developers, as it soon became apparent that users intended to use PHP to power far larger applications than was originally anticipated. Two core developers, Zeev Suraski and Andi Gutmans, took the initiative to spearhead a complete rethinking of the way PHP operated, culminating in a rewriting of the PHP parser, dubbed the Zend scripting engine. The result of this work was seen in the release of PHP 4.

# PHP - What is it?

Taken directly from PHP's home, “PHP is an HTML-embedded scripting language. Much of its syntax is borrowed from C, Java and Perl with a couple of unique PHP-specific features thrown in. The goal of the language is to allow web developers to write dynamically generated pages quickly."

This is generally a good definition of PHP. However, it does contain a lot of terms you may not be used to. Another way to think of PHP is a powerful, behind the scenes scripting language that your visitors won't see!

When someone visits your PHP webpage, your web server processes the PHP code. It then sees which parts it needs to show to visitors (content and pictures) and hides the other stuff (file operations, math calculations, etc.) then translates your PHP into HTML. After the translation into HTML, it sends the webpage to your visitor's web browser.

# PHP - What's it do?

It is also helpful to think of PHP in terms of what it can do for you. PHP will allow you to:

* Reduce the time to create large websites.
* Create a customized user experience for visitors based on information that you have gathered from them.
* Open up thousands of possibilities for online tools.
* Allow creation of shopping carts for e-commerce websites.
* HTML - Know the syntax and especially HTML Forms.
* Basic programming knowledge - This isn't required, but if you have any traditional programming experience it will make learning PHP a great deal easier.

**Usage of PHP**

In year 2000 there were only few hundred web sites developed in PHP. By year 2007 number increased to more than 2, 00, 000, 00 and number is increasing and increasing. Now a day’s most popular web site with heavy traffic has been developed in PHP.

PHP is a general-purpose scripting language that is especially suited for web development. PHP generally runs on a web server. Any PHP code in a requested file is executed by the PHP runtime, usually to create dynamic web page content. It can also be used for command-line scripting and client-side GUI applications. PHP can be deployed on most web servers, many operating systems and platforms, and can be used with many relational database management systems. It is available free of charge, and the PHP Group provides the complete source code for users to build, customize and extend for their own use.

PHP primarily acts as a filter, taking input from a file or stream containing text and/or PHP instructions and outputs another stream of data; most commonly the output will be HTML. Since PHP 4, the PHP parser compiles input to produce byte code for processing by the Zend Engine, giving improved performance over its interpreter predecessor.

Originally designed to create dynamic web pages, PHP now focuses mainly on server-side scripting, and it is similar to other server-side scripting languages that provide dynamic content from a web server to a client, such as Microsoft's Active Server Pages, Sun Microsystems' Java Server Pages, and mod\_perl. PHP has also attracted the development of many frameworks that provide building blocks and a design structure to promote rapid application development (RAD). Some of these include CakePHP, Symphony, Code Igniter, and Zend Framework, offering features similar to other web application frameworks.

The LAMP and WAMP architectures have become popular in the web industry as a way of deploying web applications. PHP is commonly used as the P in this bundle alongside Linux, Apache and MySQL, although the P may also refer to Python or Perl.

As of April 2007, over 20 million Internet domains were hosted on servers with PHP installed, and mod\_php was recorded as the most popular Apache module. Significant websites are written in PHP including the user-facing portion of Face book, Wikipedia (MediaWiki), Yahoo!, MyYearbook, Digg, Joomla, Word Press, You Tube, Drupal and Tagged.

# **Features of PHP**

**Opensource:**

PHP is a open source general purpose scripting language.

** Platform independence:**

The use of PHP adds versatility to a Web application by enabling its execution on any computer.

** Enhanced performance:**

The compilation process in PHP produces faster results or output.

**Fast:**

Because of built-in functions, developers can reduce the number of line coding. Through this PHP page execution become very fast.

 **Separation of logic from display:**

The use of PHP permits the HTML specific static content and a mixture of HTML, Javascript, and PHP specific dynamic content to be placed in separate files.

** Ease of administration:**

The use of PHP eliminates the need for high-level technical expertise, thereby helping Web developers, designers, content creators, and content managers to work together and develop Java-based applications in less time and with less effort.

** Ease of use:**

All PHP applications run on major Web servers and operating systems, including Microsoft IIS, Netscape Enterprise Server, iPlanet Web Server, and Apache Web Server. These applications are also available on Windows NT, Windows 2000, and Solaris 7.

**MySQL**

The Structured Query Language (SQL) is a very popular database language, and its standardization makes it quite easy to store, update and access data. One of the most powerful SQL servers out there is called MySQL and surprisingly enough, its free.

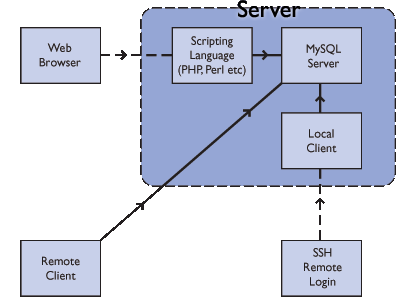
Some of the features of MySQL Include:

* Handles large databases, in the area of 50,000,000+ records.
* No memory leaks. Tested with a commercial memory leakage detector (purify).
* A privilege and password system which is very flexible and secure, and which allows host-based verification.
* Passwords are secure since all password traffic when connecting to a server is encrypted.

MySQL is a powerful Relational Database Management System (RDBMS) which we will use to learn the basic principles of database and data manipulation using Structured Query Language (SQL) statements. SQL is a database language that is used to retrieve, insert, delete and update stored data. This is achieved by constructing conditional statements that conform to a specific syntax (i.e. the strict order required of elements for a statement to work).

**How does MySQL work?**

MySQL is a database server program and as such is installed on one machine, but can 'serve' the database to a variety of locations. To explain look at the following diagram.



The MySQL Server is installed on a Server and can be accessed **directly** via various client interfaces, which send SQL statements to the server and then display the results to a user. Some of these are:

**A Local Client** – is a program on the same machine as the server. An example of this is the command line MySQL client software we will be using in the rest of the MySQL workshops (although there are other programs including graphical interfaces).

**A Scripting Language** - can pass SQL queries to the server and display the result.

**A Remote Client** – is a program on a different machine that can connect to the server and run SQL statements.

You can also use two more indirect methods.

**Remote Login** - You may be able to connect to the Server Machine to run one of its local clients.

**Web Browser** - you can use a web browser and scripts that someone has written (we're going to use this method for the rest of the workshop).

**Uses:**

Many web applications use MySQL as the database component of a LAMP software stack. Its popularity for use with web applications is closely tied to the popularity of PHP, which is often combined with MySQL. Several high-traffic web sites (including Flicker, Face book, Wikipedia, Google. (though not for searches), Nokia and You Tube) use MySQL for data storage and logging of user data.

**MySQL Architecture**

It will greatly aid your thinking about storage engines and the capabilities they bring to MySQL if you have a good mental picture of where they fit. Figure 2-1 provides a logical view of MySQL. It doesn’t necessarily reflect the low-level implementation, which is bound to be more complicated and less clear cut. However, it does serve as a guide that will help you understand how storage engines fit in to MySQL. (The NDB

storage engine was added to MySQL just before this book was printed. Watch for it in the second edition.)

**A logical view of MySQL architecture.**

The topmost layer is composed of the services that aren’t unique to MySQL. They’re services most network-based client/server tools or servers need: connection handling, authentication, security, etc.

The second layer is where things get interesting. Much of the brains inside MySQL live here, including query parsing, analysis, optimization, caching, and all the built-in functions (dates, times, math, encryption, etc.). Any functionality provided across storage engines lives at this level. Stored procedures, which will arrive in MySQL 5.0, also reside in this layer.

The third layer is made up of storage engines. They’re responsible for the storage and retrieval of all data stored “in” MySQL. Like the various file systems available for Linux, each storage engine has its own benefits and drawbacks. The good news is that many of the differences are transparent at the query layer.

The interface between the second and third layers is a single API not specific to any given storage engine. This API is made up of roughly 20 low-level functions that perform operations such as “begin a transaction” or “fetch the row that has this primary key” and so on. The storage engines don’t deal with SQL or communicate with each other; they simply respond to requests from the higher levels within MySQL.

* + **The Main Features of MySQL**

The following list describes some of the important characteristics of the MySQL Database Software.

**Internals and Portability**

* Written in C and C++.
* Tested with a broad range of different compilers.
* Works on many different platforms.
* Uses GNU Automake, Autoconf, and Libtool for portability.
* APIs for C, C++, Eiffel, Java, Perl, PHP, Python, Ruby, and Tcl are available.
* Fully multi-threaded using kernel threads. This means it can easily use multiple CPUs if they are available.
* Provides transactional and non-transactional storage engines.
* Uses very fast B-tree disk tables (MyISAM) with index compression.
* Relatively easy to add another storage engine. This is useful if we want to add an SQL interface to an in-house database.
* A very fast thread-based memory allocation system.
* Very fast joins using an optimized one-sweep multi-join.
* In-memory hash tables which are used as temporary tables.
* SQL functions are implemented using a highly optimized class library and should be as fast as possible. Usually there is no memory allocation at all after query initialization.
* The MySQL code is tested with Purify (a commercial memory leakage detector) as well as with Valgrind, a GPL tool.
* The server is available as a separate program for use in a client/server networked environment. It is also available as a library that can be embedded (linked) into standalone applications. Such applications can be used in isolation or in environments where no network is available.