

What is PHP?

- i] PHP is HyperText Preprocessor. PHP is widely used as Server side Scripting language.
- ii] PHP Scripts run on web server.
- iii] PHP is open source language so it's free to download and use.

- HTML was developed by Tim Bernerslee in 1991
- CSS developed by Hakon Wiumlie in 1996
- JavaScript was developed by Brend Eich in 1996

How PHP Works

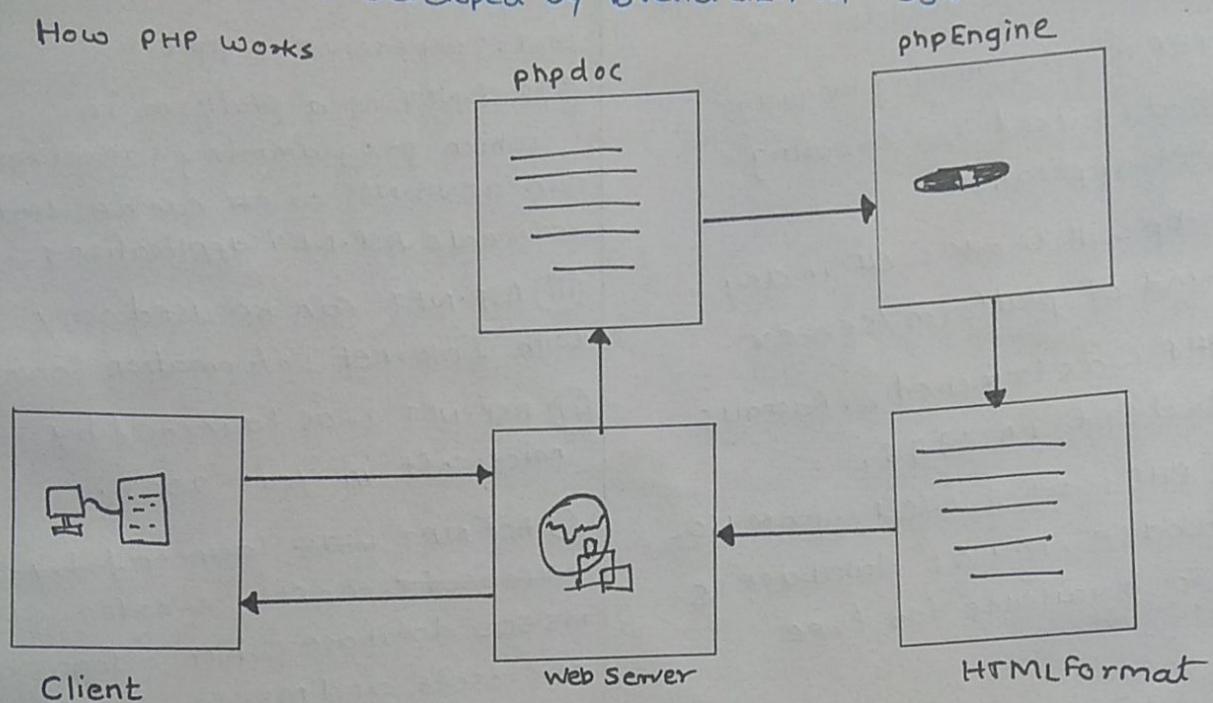


Fig. Working of PHP

PHP DataTypes

- | | |
|-----------|------------|
| ① String | ⑤ array |
| ② integer | ⑥ Object |
| ③ float | ⑦ NULL |
| ④ boolean | ⑧ Resource |

Operators in PHP

- ① Arithmetic
- ② Increment/Decrement
- ③ Assignment
- ④ Comparison/Relational
- ⑤ Condition/Ternary
- ⑥ Logical
- ⑦ Bitwise
- ⑧ String

Conditional statements in PHP

- ① if
- ② if-else
- ③ if-else ladder
- ④ Nested if-else
- ⑤ switch

Loops

- ① while loop
- ② do-while loop
- ③ for loop
- ④ foreach loop

Syntax to write PHP code

- 1) <?php //code ?>
- 2) <? //code ?.?
- 3) <script language="PHP"> //code </script>

long tag

short tag

PHP v/s ASP.NET

PHP

ASP.NET

- i) PHP is an open source technology which can be used for free.
- ii) PHP is programming language that is used for creating web application.
- iii) PHP will work well in any kind of platform/server.
- iv) PHP was launched by Rasmus Lerdorf in 1995.
- v) PHP works well with MySQL database. MySQL database is also available for free.
- vi) PHP can run in Linux OS which is available for free.
- vii) Coding using PHP is easy when compared to all other programming language.
- viii) Many useful tools that can be used with PHP are available for free.
- ix) PHP syntax is similar to syntax of C and C++ programming languages.
- x) PHP execution is faster because PHP uses inbuilt memory space.

- i) ASP.NET is a Microsoft technology that is expensive in price.
- ii) ASP.NET is a platform in which programming language such as VB.NET or C# can be used to create ASP.NET applications.
- iii) ASP.NET can be used only with Internet Information Server (IIS).
- iv) ASP.NET was launched by Microsoft in year 2002.
- v) ASP.NET was launched by Microsoft mostly works with MSSQL database which belongs to Microsoft and MS-SQL is not available for free.
- vi) ASP.NET needs windows platform which is not available for free.
- vii) Coding using ASP.NET is complicated and it requires lots of learning efforts.
- viii) Tools that can be used with ASP.NET are not available for free.
- ix) The syntax and concepts of ASP.NET are similar to syntax of Visual Basic.
- x) ASP.NET code execution is comparatively slower because it will utilize the serverspace during execution.

PHP	Perl
① PHP solves a very specific problem: building websites and web applications	① Perl was designed as a general purpose programming language.
② PHP was developed by Rasmus Lerdorf in 1994	② Perl was created by Larry Wall in 1987
③ PHP became popular at web with respect to deployment and its integration with MySQL	③ Perl became more general purpose and popular too.
④ PHP has a lot of web frameworks and API support.	④ Perl shines for Text manipulation and glueing programs together.
⑤ PHP is much easier to learn than Perl.	⑤ Perl has better documentation than PHP and is complex to learn.
⑥ PHP is built from the ground up with database functionality built-in. Particularly MySQL functionality.	⑥ Perl code is not not much consistent and modular as compare to PHP.
⑦ PHP code tends to be more consistent and modular.	⑦ Perl does not have this facility.
⑧ PHP stands for Hypertext Preprocessor.	⑧ PERL stands for Practical Extraction and Reporting Language.

PHP vs JAVA

PHP

- ① PHP is mostly used to dynamically generate webpages
- ② PHP offers OOP as an option that is ignored in most projects
- ③ PHP is weakly and dynamically typed.
- ④ PHP is interpreted
- ⑤ PHP object method calls use → operator
- ⑥ Constructors in PHP are called —construct()
- ⑦ String constants in PHP are declared using single or double quotes. Double quotes will evaluate variable embedded in text
- ⑧ The main code entry point like Java is not present by method to a class
- ⑨ PHP has no class library.

JAVA

- ① Java & can do that too, as in Applets, mobile phone software, enterprise stuff, desktop application with and without GUI, 3D games, Google web toolkit etc.
- ② In Java OOP is the default
- ③ Java is strong and statically typed.
- ④ Java is compiled to bytecode.
- ⑤ Java uses the (.) dot operator
- ⑥ Constructors in Java are named after class name
- ⑦ All Java string constants use double quotes and have no such variable evaluation
- ⑧ The main entry point in Java is a method to a class
- ⑨ Java class library provides a mechanism to implement threads.

- Apache module

Using mod-php to execute php scripts on a web server is the most popular used by our customers and until recently was the default mode we set when you create a new webspace.

Pros : ① PHP code executed by Apache

② No external process required

③ very good performance on PHP heavy sites.

Cons : ① Makes each Apache process footprint large - meaning more RAM used

② Loads PHP interpreter for non PHP content

- Web Server examples

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

1] APACHE

2] IIS

3] NGINX

4] IBM's family of Domino Servers

5] LightSpeed

- Web browser

- It is a software application for retrieving, presenting and traversing information resources on the world wide web.

echo vs Print

echo

Print

① It can accept multiple expression

② It is faster than Print as it does not return any value

③ It can pass multiple strings separated as ()

④ It does not return any value

① It cannot accept multiple expressions.

② It is slower than echo as it returns a value

③ It cannot pass multiple arguments.

④ It always returns the value.

PHP Program Basic

- ① Statements : A Statement in PHP is any expression that is followed by a semicolon. (;)
- ② Comments : A comment in PHP code is a line that is not read/executed as a part of program
- ③ Literals : Is a notation for representing a fixed value in source code.

→ Xo X →

- Variable : Is a name given to a memory location that holds a value.

Types : Local variable and Global variable

- Constants

- i] Constants are like variables except that once they are defined they cannot be changed or undefined.
- ii] A valid constant variable do not have a \$ sign before its name
- iii] A valid constant name starts with a letter or underscore
- iv] Constants are declared using inbuilt define() function.
eg. <?php

```
define ("GREETING", "Welcome to PHP World");  
echo $GREETING;  
?>
```

- Array Operator

- i] + (union)
- ii] == (equality)
- iii] === (Identity)
- iv] != (Inequality)
- v] !== (Non-identity)

- CGI : Executing PHP Scripts with CGI application is the legacy way of running application on a web server
Pros : Better security than mod-php as PHP code execution is isolated from web server
Cons : ① Legacy way of running slow
② very poor performance

php.ini file

- i] The php configuration file, is the final and most immediate way to affect PHP's functionality.
- ii] The php.ini file is readed each time when php is initialized. In other words whenever httpd is restarted for the module version or with each script execution for CGI version
- iii] If your change isn't showing up, remember to stop and restart httpd if it still isn't showing up use phpinfo() to check the path to php.ini
- iv] Keys are case sensitive, keyword values are not; whitespace and lines begining with semicolons are ignored
- v] Boolean can be represented by 1/0, Yes/No, ON/OFF or True/False

~~Var~~ var-dump() function

The var-dump() function is used to dump information about a variable. This function displays structured information such as type and value of given variable. Arrays and objects are explored recursively with values intended to show structure. This function is also effective with expressions.

Syntax: void var-dump(*expr*)

float(2.7)

Array

Creating array in php is done with help of array() function. An array stores multiple values in single variable.

Different types of array in php

① Indexed Array : Array with numeric index (starts from 0)

② Associative Array : Arrays with named key.

③ Multidimensional array : multidimensional array is array

containing two or more arrays.

Array Functions

① array()

② array_change_key_case()

Syntax: array_change_key_case (\$arr, case)

③ count()

Syntax: count(\$arr)

④ array_merge()

Syntax: array_merge (\$arr1, \$arr2)

⑤ array_search()

Syntax: array_search (value, \$arr)

⑥ array_replace()

Syntax: array_replace (\$arr1, \$arr2)

⑦ range()

Syntax: range (StartValue, EndValue)

⑧ Sort()

Syntax: sort(\$arr)

⑨ rsort()

Syntax: rsort(\$arr)

⑩ array_reverse()

Syntax: array_reverse(\$arr)

String functions

i) `strlen()`

Syntax: `strlen($str)`

ii) `str_word_count()`

Syntax: `str_word_count($str)`

iii) `strrev()`

Syntax: `strrev($str)`

iv) `strpos()`

Syntax: `strpos(* $str, $keyword)`

v) `str_replace()`

Syntax: `str_replace($find, $replace, $str)`

vi) `implode()`

Syntax: `implode($seprator, $arr)`

vii) `explode()`

Syntax: `explode($seprator, $str)`

viii) `echo()`

Syntax: `echo "message".`

ix) `bin2hex()`

Syntax: `bin2hex("Hello world");`

~~echo \$str;~~

x) `hex2bin`

Syntax: `hex2bin($hexvalue)`

Recursion

- A recursive function is one that calls itself either directly or in a cycle of function calls.
- Recursion can also refer to a method of problem solving that first solves smaller version of the problem, and then uses that result plus some other computation to formulate an answer to the original problem.
- To write a recursive function, you need to provide it with some means of return or else it will keep calling itself for eternity.

Factorial Program:

```
<?php
function factorial($number)
{
    if ($number < 2)
    {
        return 1;
    }
    else
    {
        return ($number * factorial($number - 1));
    }
}
```

?7

The user-defined functions with parameters are further classified into two variations

- a) pass by value
- b) pass by reference

a] Pass by value: In this copy of actual variable pass as an argument. So, if function modifies variable then the original variable value remain same.

b] Pass by reference: Here the reference of original variables pass as an argument to a function. So whenever function modify the value of parameter then the original variable value ~~may~~ get change or modify.

unset() function is used to delete an element from array

Syntax : unset (\$arr[\$index])

- Advantages of PHP

1] Open Source: It is developed and maintained by a large group of php developers

2] Speed: It is relatively fast since it uses much system resources

3] Easy to use : It uses 'C' like Syntax

4] Can be run on many platforms: including windows, Linux and Mac OS.

- Disadvantages of PHP

1) Security : Since it is open sourced, So all people can see the source code, if there are bugs in the source code, it can be used by people to explore weakness of PHP

Class

- i] This is a programmer defined data type, which includes local functions as well as local data.
- ii] A class is a template for making many instances of the same kind of object.
- iii] A class is defined by using keyword 'class' followed by name of class.
- iv] Class includes data members and member functions.

Object

- i] Object is nothing but its an instance of class
- ii] When class is defined we can create any no. of objects of that class.
- iii] Object is created with the help of new keyword.
- iv] When the objects are created we can access the variables and methods of class with help of → operator

Encapsulation

- i] Refers to a concept where we encapsulate all data and member functions together to form an object.
- ii] It is a concept of wrapping up or binding up related data members and methods in a single module.

Polymorphism

Polymorphism means ability to take more than one form that an operation can exhibit different behaviour at different instances, depend upon the data passed in the operation.

Polymorphism is achieved using method overloading and method overriding.

PHP doesn't support method overloading concept. When same methods defined in parent and child class with same signature it is known as method overriding.

Concepts of OOP

- ① Class
- ② Object
- ③ Encapsulation
- ④ Polymorphism
- ⑤ Data Abstraction
- ⑥ Inheritance
- ⑦ Constructor and destructor
- ⑧ Message passing and dynamic binding

Difference between PoP and OOP

PoP

- ① In PoP Program is divided into small parts called functions
- ② PoP follows Top Down Approach
- ③ Access Specifiers : PoP does not have any access specifier.
- ④ In PoP, Data can move freely from function to function in system
- ⑤ To add new data and function in PoP is not so easy.
- ⑥ PoP has not any proper way for hiding data so it is less secure.
- ⑦ In PoP, Overriding and Overloading is not possible.
- ⑧ e.g. C, VB, FORTRAN, PASCAL

OOP

- ① In OOP Program is divided into parts called object
- ② OOP follows Bottom Up Approach
- ③ OOP has access specifiers named public, private and protected etc.
- ④ In OOP objects can move and communicate with other through member functions.
- ⑤ OOP provides an easy way to add new data and functions.
- ⑥ OOP provides Data Hiding so provides more security.
- ⑦ In OOP overloading is possible in term of function overloading and operator overloading
e.g. C++, JAVA, VB.NET etc.

class methods

① class_exists()

checks if the class has been defined

② get_class_methods(): Gets the class methods' names

③ get_class_vars()

④ get_class(): Returns the name of the class of an object

⑤ get_deduced_classes()

⑥ get_deduced_interfaces()

⑦ get_object_vars()

⑧ get_parent_class(): retrieves the parent class name
for object or class

⑨ interface_exists()

⑩ is_a(): checks if the object is of this class or has
this class as one of its parents. syntax: is_a(\$obj, 'classname')⑪ is_subclass_of(): checks if object has two classes
as one of its parents

⑫ method_exists(): syntax: method_exists(\$obj, 'methodname')

⑬ property_exists

Advantages of PHP

① Open Source: It is developed and maintained by a
large group of PHP developers. This will help
in creating a support community, abundant extension
library.② Speed: It is relatively fast since it uses much system
resource③ Easy to use: It uses C-like syntax. So for those who
are familiar with C, it's very easy for them to pick
up and it is very easy to create website scripts.④ Stable: Since it is maintained by many developers, so
when bugs are found, it can be quickly fixed⑤ Powerful Library Support: You can easily find functional
modules you need such as PDF, Graph etc.⑥ Built-in database connection modules: You can connect
to database easily using PHP, since many websites

are data / content driven, so we will use database frequently, this will largely reduce the development of web apps

can be run on many platforms including windows, Linux, Mac, it's easy for users to find hosting service providers.

Disadvantages of PHP

1] Security: Since it is open sourced, so all people can see the source code, if there are bugs in the source code it can be used by people to explore the weakness of PHP.

2] Not suitable for large applications: Hard to maintain since it is not very modular

3] Weak Type: Implicit conversion may surprise unwary programmers and lead to unexpected bugs.
for e.g. the strings "1000" and "1e3" compare equal because they are implicitly cast to floating point numbers.

Inheritance

when a class is defined by inheriting existing function of a parent class then it is called inheritance.

Here child class will inherit all or few member functions and variables of a parent class.

PHP supports two types of inheritances:

- a] Single level
- b] Multi level.

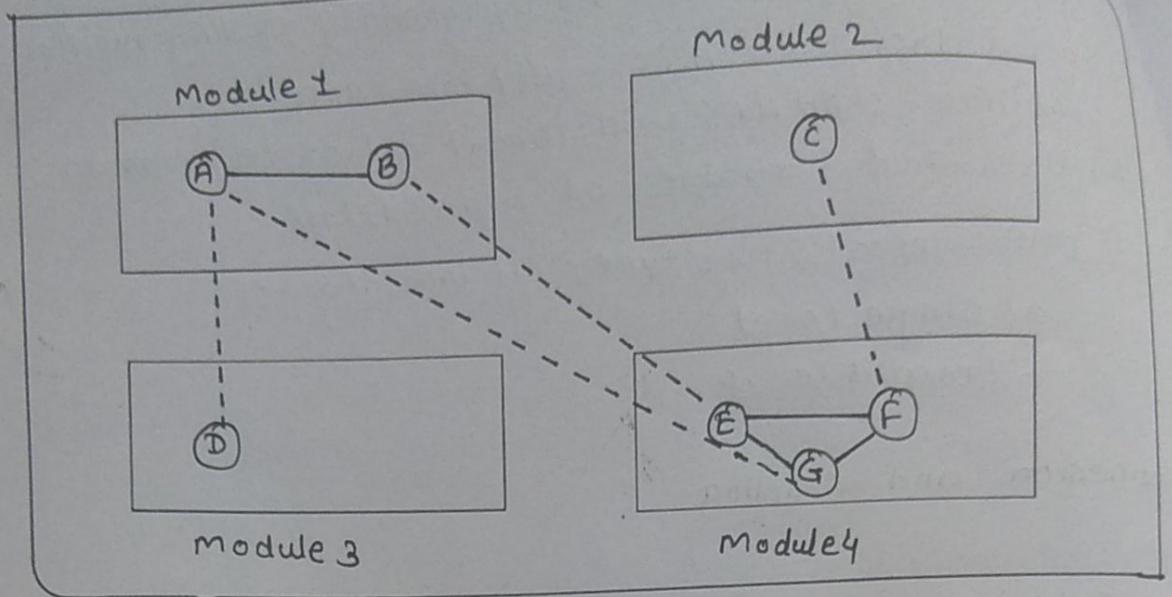
Cohesion and Coupling

Cohesion

- ① Cohesion is the indication of relationship within module
- ② Cohesion is a degree to which a module focuses on the single thing
- ③ Cohesion is the kind of natural extension of data hiding
- ④ Cohesion is Intra-module concept
- ⑤ Shows the module's relative functional strength

Coupling

- ① Coupling is the indication of the relationships between modules
- ② Coupling is a degree to which a module is connected to other modules
- ③ Making private fields, Private methods and non-public classes provides loose coupling.
- ④ Coupling is Inter-module concept
- ⑤ Shows the relative independence among the modules



——— Cohesion
 - - - - Coupling

Fig. Cohesion and coupling

Access Specifiers / Modifiers / Visibility Mode

- ① Public: Accessible Everywhere
- ② Private: Accessible for the class in which they are defined or declared. Parent class Private variables and methods cannot be accessed by child class
- ③ Protected: Accessible within class where it is declared and in child class but in child class the variable and methods will be private.

- <form> attributes

- i) action: attribute specifies the URL of a file that will process the input control when the form is submitted
- ii) enctype: attribute specifies how the form data should be encoded when submitted (only for forms with POST method)
- iii) method: attribute defines the HTTP method for sending form-data to the action URL (GET or POST)
- iv) target: attribute specifies a name or a keyword that indicates where to display the response that is received after submitting the form.

- Why the form validation is needed?

i] It's important to validate the form submitted by the user because it can have inappropriate values. And validation is must.

ii] In PHP we can validate a form either by using JavaScript or by regular expression.

iii] The javascript provides us the facility to validate the form on the client side so processing will be fast.

iv] As in PHP regular expression also provides us the various syntaxes to validate a particular form.

A] \$-GET[]

i] It is an array of variables passed to the current script via the URL parameters.

ii] GET method is visible to everyone

to send that is about 2000 characters

iv] GET may be used for sending non-sensitive data

v] GET should never be used for sending passwords or other sensitive information.

vi] e.g. <http://www.example.com/action.php?name=john&age=29>

vii] More than one parameter = value can be embedded in the URL by concatenating with ampersand (&)

difference between two Super global variables in php

\$-GET

- ① It is default method
- ② It carries data only 2kb - 80kb
- ③ It carries only ASCII characters
- ④ It supports caching
- ⑤ It supports bookmarking
- ⑥ It doesn't give any secrecy
- ⑦ It appends form data to the request URL as querying to send request to the server.
- ⑧ Faster to send request.

\$-POST

- ⑧ It is not default method
- ⑨ It can carry unlimited of data
- ⑩ It carries any type of data such as image, mp3 etc.
- ⑪ It doesn't support caching
- ⑫ It doesn't support bookmarking
- ⑬ It gives data secrecy
- ⑭ It sends data from web browser secretly through Sockets.
- ⑮ It is little slow.

• <input> element type attribute

- ① text
- ② password
- ③ submit
- ④ reset
- ⑤ radio
- ⑥ checkbox

• <input> tag attributes

- ① name
- ② read-only
- ③ disabled
- ④ size
- ⑤ maxlength
- ⑥ placeholder
- ⑦ required

Modifier

- ① i : makes the match case-insensitive
- ② o : Evaluates the expression only once
- ③ x : allows you to use white space in the expression for clarity
- ④ g : Globally finds all matches

PERL Functions

- ① Preg-match(): preg-match (\$pattern, \$originalString)
- ② preg-match-all(): The preg-match-all() function matches all occurrences of pattern in string.
- ③ preg-replace(): Syntax: preg-replace(\$pattern, \$replacement, \$str)
- ④ preg-split(): Syntax: preg-split (\$pattern, \$str)
- ⑤ preg-grep(): The preg-grep() function searches all elements of input-array, returning all elements matching the regexp pattern
Syntax: preg-grep (\$pattern, \$arr)
- ⑥ preg-quote(): preg-quote (\$str, \$quaterreplace)

- What is the use of regular expression?
Regular expressions are powerful pattern matching algorithm that can be performed in a single expression.
- 1) Regular expression simplify identifying patterns in string data by calling a single function. This saves us coding time
- 2) When validating user input such as email address, domain names, telephone numbers
- 3) Highlighting keywords in search results
- 4) When creating a custom HTML template, regular expression can be used to identify the template tag and replace them with actual data.

enctype: ① Application/x-www-form-urlencoded
All characters are encoded before submitting form

② multipart/form-data
It does not encode any character it is used when our form contain file upload controls

③ text/plain

POSIX: Portable Operating System Interface

PERL: Practical Extraction and Reporting Language.

POSIX inbuilt function

① ereg(): ereg() function searches a string specified by string for a string specified by a pattern returning true if the pattern is found otherwise will return false.

Syntax: ereg(\$pattern, \$originalString)

② eregi(): Searches throughout by string specified by a pattern specified by string. The search is not case-sensitive

③ ereg-replace():

Syntax: ereg-replace (\$pattern, \$replacement, \$originalString)
eg. \$result = ereg-replace ("([0-9]+)", "2020",

④ eregi-replace(): Not case-sensitive
\$copy-date);

⑤ split(): Not case-sensitive
Syntax: split(\$pattern, \$originalString)

eg. \$ip = "192.168.0.1";
\$ip-res = split(".", \$ip);
print(\$ip-res[0]);

⑥ Split(): Not case-sensitive

⑦ sql-reg-case(): Syntax: sql-reg-case(\$str)
eg. \$version = "PHP 7.3";
print(sql-reg-case(\$version));

Output: [Pp] [Hb] [Pp] 7.3

\$POST[]

- i] \$POST is an array of variables passed to the current script via the HTTP POST method
- ii] In POST method the data is sent to the server as a package in separate communication ~~the~~ with the processing script.
- iii] This method has no limit on amount of information to send.
- iv] Developers prefer POST for sending form data

Regular Expression

- i] Regular expressions are nothing more than a sequence or pattern of characters itself.
- ii] They provide the foundation for pattern matching functionality.
- iii] Regular expressions, commonly known as regex or regexp
- iv] PHP offers regular expression using that we can search a particular string inside another string, we can replace string by another string and we can split a string into many chunks.

- 1] [:alpha:] => It matches any string containing alphabetic characters A through Z
- 2] [:digit:] => It matches any string containing numerical digits 0 through 9
- 3] [:alnum:] => It matches any string containing alphanumeric characters A through Z and 0 through 9
- 4] [:space:] => It matches any string containing a space.

\$_FILES

It is one of the Superglobal variables. It is associative, double dimensional array and keeps all the information related to uploaded files.

\$_FILE

A file is a collection of data stored in one unit, identified by a name. It can be a document, picture, audio or video stream, data library, application or other collection of data.

fopen()

The php fopen() function is used to open a file. It requires two arguments stating first the filename and then mode in which to operate.

Modes

r : Opens file for reading only. places the file pointer at the beginning of the file.

r+ : Opens file for reading and writing. places file pointer at the beginning of the file

w : Opens the file for writing only
places the file pointer at the beginning of file and truncates the file to zero length. If file does not exist then it attempts to create a file

w+ : Opens the file for reading and writing only.
Places the file pointer at the beginning of the file.

d : Opens the file for writing only. places the file pointer at the end of the file. If file does not exist then it attempts to create a file.

~~d~~ dt : Opens the file for reading and writing only. places the file pointer at the end of the file. If file does not exist then it attempts to create a file.

dt : Opens the file for reading and writing only. places the file pointer at the end of the file. If file does not exist then it attempts to create a file.

If an attempt to open a file then fopen() returns false value. otherwise it returns a file pointer which is used for further reading or writing to that file.

fclose(): The fclose() function requires a file pointer as its argument and then returns true when the closure succeeds or false if it fails

fread(): This function requires two arguments. These must be the file pointer and length of file expressed in bytes. file's length can be found using filesize() function which takes the file name as argument and returns the size of file.

fwrite(): This function requires two arguments specifying the file pointer and string of data that is to be written. Optionally a third integer argument is included to specify the length of the data to write. If the third argument is included, writing will stop after the specified length has been reached.

copy(): copy (\$firstfile, \$secondfile) //To copy content from first file
// to second file

rename(): Syntax: rename("./old.txt", "./new.txt")
unlink(): Syntax: unlink (\$filepath)

To create directories: mkdir() can be used to create directories. It takes two parameters; Path to directory and the permission

To delete directory: rmdir (\$dirpath)

To open directory: opendir (\$dirpath, context)

To read directory: readdir (\$dirpath)

To close directory: closedir (\$dirpath)

fgets(): The fgets function is used to read php files line by line. It has following basic Syntax: fgets(\$handle)

die() function is called if an error occurs. It displays a message and exists execution of the script.

file_get_contents(): It is used to read entire file contents.

Database

Advantages

- 1] Reduced data Redundancy
- 2] Reduced updating errors and increased consistency
- 3] Greater data integrity and independence from applications programs
- 4] Improved data access to users through use of host and query languages
- 5] Improved data security.
- 6] Reduced data entry, storage and retrieval costs
- 7] Facilitated development of new applications program

Disadvantages

- 1] Database systems are complex, difficult and time-consuming to design
- 2] Substantial h/w and sw startup costs
- 3] Damage to database affects virtually all applications programs
- 4] Extensive conversion costs in moving from a file-based system to a database system
- 5] Initial training required for all programmers and users

Types

- ① Hierarchical DBMS
- ② Network model
- ③ Relational model
- ④ Object-oriented model.

Difference between MySQL and MySQLi

MySQL	MySQLi
i) MySQL extension added in PHP version 2.0 and deprecated as of PHP 5.5.	i) MySQLi extension added in PHP 5.5 and will work on MySQL 4.1.3 and above.
ii) Do not support prepared statements.	ii) MySQLi supports prepared statements.
iii) MySQL provides the procedural interface.	iii) MySQLi provides both procedural and object-oriented interface.
iv) MySQL extension does not support stored procedure.	iv) MySQLi supports stored procedure.
v) MySQL extension lacks in security and other special features comparatively.	v) MySQLi extension is with enhanced security and improved debugging.
vi) Transactions are handled by SQL queries only.	vi) MySQLi supports transactions through API.
vii) Extension directory: ext/mysql	vii) Extension directory: ext/mysql

Database Abstraction Layer

database abstraction layer is a layer which sits between your application and the underlying database. You will use the benefit of the database abstraction layer to interact with your database. You could switch your underlying database backend without worrying about code changes in your application. A database abstraction layer also simplifies the database code and makes it easier to connect with and update with the database.

Features of MySQL

- ① MySQL is an open source database
- ② It handles large subset of functionality of most expensive and powerful database packages
- ③ MySQL uses a standard form of well known SQL language.
- ④ MySQL is compatible with all OS and programming languages.
- ⑤ MySQL is mostly preferable database for web development
- ⑥ MySQL supports large databases upto 50 million rows or more in a table and the default size limit for table is 4GB. But you can increase this to a theoretical limit of 8 million TB.

Difference between MySQL and MySQLi

MySQL	MySQLi
i It is an extension added to PHP 2.0 and deprecated as of PHP 5.0	i Extension added in PHP 5.0 and will work on further versions.
ii It does not support prepared statements	ii It supports prepared statements.
iii Procedural interface	iii Object oriented interface
iv Lacks security measure	iv Improved security measures
v Extension directory ext/mysql	v Extension directory ext/mysql

magic constants

- 1] __LINE__ : The current line of file
- 2] __FILE__ : It will return full path and name of file
- 3] PHP_VERSION : PHP version
- 4] PHP_INT_MAX : Maximum value of integer datatype

Database: Database is a collection of related data and data is a collection of facts and figures that can be processed to produce information.

A database management system stores data in such way that it becomes easier to retrieve, manipulate and produce information.

Characteristics

- i] Real-world entity
- ii] Relation based tables
- iii] Isolation of data and application.
- iv] Less redundancy.
- v] Consistency.
- vi] Query language
- vii] ACID properties
- viii] Multiuser and concurrent access
- ix] Multiple views
- x] Security

Advantages of database

- i] Improved data sharing
- ii] Improved data security
- iii] Better data integration
- iv] Minimized data inconsistency
- v] Improved data access
- vi] Improved decision making
- vii] Increased end-user productivity

PEAR::DB Supports

- i] Firebird
- ii] Interbase
- iii] Informix
- i v] mSQL
- v] MS SQL
- v i] MySQL
- vii] Oracle
- viii] ODBC
- IX] PostgreSQL
- X] SQLite
- XI] Sybase

ADODb

It's particularly easy to learn for Microsoft developers as it uses many of the ADO conventions. It's been around since 2000 and is well supported and is also used by numerous popular web applications such as Mambo and eGroupware.

ADODb has quite a few methods that go beyond what's normally in an abstraction layer, such as formatting tables and caching and it supports most DBMS.

- i] Access
- ii] ADO
- iii] ~~ADB2~~
- iv] Firebird
- v] FoxPro
- vi] FrontBase
- vii] Informix
- viii] Interbase
- IX] LDAP
- X] mS SQL
- XI] MySQL
- XII] Netezza
- XIII] ODBTP
- XIV] ODBC
- XV] Oracle
- XVI] PostgreSQL
- XVII] SAP DB
- XVIII] SQLite
- XIX] Sybase

Disadvantages of database

- ① Increased costs
- ② management complexity
- ③ maintaining currency.
- ④ frequent upgrade/replacement cycles

odbc_connect()

Syntax: int odbc_connect(string dsn, string user, string pass, [int cursor_type])

eg. <?php
\$connid = odbc_connect("foo", "user", "pass") or die(odbc_error());
echo "connection successful";
odbc_close(\$connid);
?>

odbc_exec() and odbc_do()

Syntax: int odbc_exec(int connection_id, string query_string)
int odbc_do(int connection_id, string query_string)

Data Abstraction

Data abstraction refers to providing only essential information to outside world and hiding their background details i.e. to represent the needed information in program without presenting details.

Data abstraction is a programming (and design) technique that relies on the separation of interface and implementation

PEAR:DB

In existence since 2001, part of the PEAR repository and bundled with PHP, PEAR:DB is for these reasons the most popular database abstraction library. PEAR Stands for PHP extension and Application repository, and describes itself as a framework and distribution system for reusable PHP components. It's not known as particularly zippy and is also being usurped by more recent and better performing abstraction layers

Metabase

Developed by manuel Lemos , Metabase has a reputation as one of the slower abstraction layers , but then it does support all the way back to PHP3 as it is also designed for maximum portability

Metabase Supports

- i] Access
- ii] Informix
- iii] Interbase
- iv] MySQL
- v] ms SQL
- vi] MySQL
- vii] ODBC
- viii] Oracle
- IX] PostgreSQL
- X] SQLite

MDB

MDB is a merge between the PEAR:DB and Metabase database abstraction layers , as well as attempt to improve the performance and portability of both . The first stable version was released in April 2004.

MDB Supports:

- i] Firebird
- ii] Frontbase
- iii] Interbase
- iv] MS-SQL
- v] MySQL
- vi] Oracle
- vii] PostgreSQL
- viii] Querysim

SQL

SQL is Structured Query Language , which is a computer language for storing , manipulating and retrieving data stored in relational database

SQL stands is standard language for Relational Database System . All relational database management systems like MySQL , MS Access , Oracle , Sybase , Informix , PostgreSQL and SQL Server use SQL as standard database language

DDL - Data Definition Language

CREATE
ALTER
DROP

DML - Data Manipulation Language

SELECT
INSERT
UPDATE
DELETE

DCL - Data Control Language

GRANT
REVOKE

Numeric Data Types

- 1] INT
- 2] TINYINT
- 3] SMALLINT
- 4] MEDIUMINT
- 5] BIGINT
- 6] FLOAT
- 7] DOUBLE
- 8] DECIMAL

Date and Time Types

- 1] DATE
- 2] DATETIME
- 3] TIMESTAMP
- 4] TIME
- 5] YEAR(M)

String Types

- 1] CHAR (M)
- 2] VARCHAR(M)
- 3] BLOB OR TEXT
- 4] TINYBLOB OR TINYTEXT
- 5] MEDIUMBLOB OR MEDIUMTEXT
- 6] LONGBLOB OR LONGTEXT
- 7] ENUM