5. SERVER SIDE SCRIPTING (PHP)

Index:

- Features of PHP
- PHP variables, datatypes
- PHP Array, String function and user- defined functions
- PHP form handling

From:

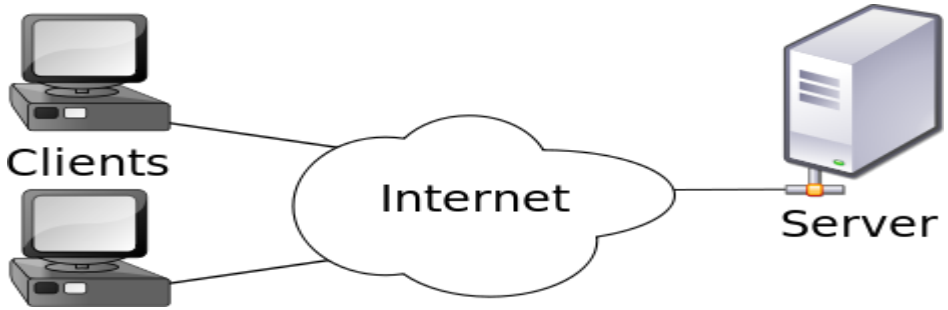
Mrs. Shilpa Prashant Kate (IT Teacher)
S.B.Patil college of Science & Commerce,Ravet

INTRODUCTION TO PHP

- PHP stands for Hypertext Preprocessor.
- It is widely used open source general purpose scripting language.
- It is widely used for web development and can be embedded with HTML.
- PHP scripts are executed on the server.
- PHP is free to download and use.
- PHP runs on various platform like LINUX, UNIX,Mac OS, Windows etc.
- It is compatible for almost all servers used today like XAMMP, Apache, NGINX, lighttpd.
- It supports wide range of databases.
- PHP is easy to learn and runs efficiently on the server side.
- PHP is free to download and one can download it from the official website www.php.net

SERVER SIDE SCRIPTING

➢ A server is a computer system that serves as a central repository of data and programs and is shared by all clients.



➢The server side environment that runs a scripting language is termed as web server.

➢Server-side scripting as it relates to web pages usually refers to PHP code that is executed on the web server before the data is passed to the user's browser.

➢In the case of PHP, all PHP code is executed server-side and no PHP code ever reaches the user.

➢ After the PHP code is executed, the information it outputs is embedded in the HTML, which is sent to the viewer's web browser.

➢ It is usually used to provide interactive web sites that interfaces with databases or other data stores on the server.

➢ Few server-side scripting languages are PHP, Java & JSP, Python.

- PHP mainly focuses on server-side scripting , which is used to collect form data, generate dynamic page content or send and receive cookies.

- Dynamic Page: A dynamic web page is a web page that displays different content each time it's viewed. For example, the page may change with the time of day, the user that accesses the webpage, or the type of user interaction.

- Cookies: An **HTTP cookie** (also called **web cookie**, **Internet cookie**, **browser cookie**, or simply **cookie**) is a small piece of data stored on the user's computer by the web browser while browsing a website.

FEATURES OF PHP

Simple: It is very simple and easy to use as compared to other scripting languages.

Interpreted: It is an interpreted language i.e no need of compilation.

Faster: It is faster than other scripting language e.g JSP & ASP

Open Source: It means you will not pay money to use it .You can freely download and use it.

Platform Independent: It will run on all platform like Linux, Unix, Mac OS, Windows.

Case Sensitive: It is case sensitive when you declare variables.
All keywords(echo , if, else etc) ,classes, functions and user-defined functions are not case-sensitive.

Error Reporting: PHP has some pre-defined error reporting constants to generate a warning or error notice.

Real Time Monitoring: PHP provides access logging by creating summary of recent accesses for the user.

Loosely Typed Language: PHP allows you to use variable without declaring its data type. It will be taken at the time of execution , based on the type, data has its value.

FIRST SAMPLE CODE OF PHP

- A php file normally contains HTML tags and some PHP scripting code.
- It is usually enclosed in special start and end tag processing instructions. <?php …. ?> which allows us to move into and out of php mode.
- Even it allows to embed HTML with PHP.
- Extension of php is".php"
- PHP script can be placed anywhere in HTML document.

Program 5.1:

```
<!DOCTYPE html>
<html>
<body>
<h1>My First PHP Page</h1>
<?php
echo "Hello World!";
?>
</body>
</html>
```

OUTPUT

Output 5.1:

Note : The PHP code is embedded with HTML tags using <?php and ?>.

HOW TO EXECUTE PHP CODE

- Type the above program and save it as "first.php" using any text editor like notepad, gedit.
- Save the file in C:/XAMPP/htdocs/first.php.
- Go to the browser and type http://localhost/first.php

PHP CASE SENSITIVITY

- **In PHP "Variables "are case sensitive.**
- **However keywords, functions, class name are not case sensitive.**

HOW TO EXECUTE PHP CODE

Program 5.2: First.php

```
<?php
ECHO "Hello World!<br>";
echo "Hello World!<br>";
EcHO "Hello World!<br>";
?>
```

Output 5.2:

Hello World!
Hello World!
Hello World!

Note : In above example, HTML tag
 is enclosed in echo output string.

Go to the browser and type http://localhost/first.php

PHP VARIABLES

•Variable is a symbol or name that stands for a value.

•Variables are used for storing values such as numeric, characters, strings or memory addresses, so that they can be used in any part of program.

RULES FOR DECLARING VARIABLES

•Variable starts with $ sign, followed by name of the variable.

•A variable name must start with a letter or underscore character.

• A variable name cannot start with a number.

• A variable name can only contain alpha-numeric characters and underscores(A- z,0-9 and _[underscore]) .

•Variable names are case-sensitive. (Eg. $age and $AGE are considered different).

SCOPE OF VARIABLES IN PHP

•**Local**: A variable declared within a function has local scope and **can be accessed within that function.**

• **Global**: A variable declared outside the function has a global scope and **can only be accessed outside the function.**

•**Static**: When a function is executed , then all of its variables are deleted. **If you want a local variable not to be deleted then use must use static keyword**.

Comments

Comments :-are not visible in the output of the program as it is ignored during the execution.

A single line comments is given by // or # before the PHP statement and a multi-line comment is possible by /*...*/

SCOPE OF VARIABLES IN PHP

Program 5.3:

```
<?php
$a = 20;
$c = 15;
function myFunction(){
$b = 10;
global $c;
echo "<p> value of 'a' inside function
is : $a </p>";
echo "<p> value of 'b' inside function
is : $b </p>";
echo "<p> value of 'c' inside function
is : $c </p>";
}

myFunction();
echo "<p> value of 'a' outside function
is : $a </p>";
echo "<p> value of 'b' outside function
is : $b </p>";
?>
```

Output 5.3:

value of 'a' inside function is :
value of 'b' inside function is : 10
value of 'c' inside function is : 15
value of 'a' outside function is : 20
value of 'b' outside function is :

Program 5.4:

```
<?php
function myCount(){
static $c = 0;  // Static Keyword
echo $c;
$c++;
}
echo "Output of myCount() with use of
'static' keyword : <br>";
myCount();
echo "<br>";
myCount();
echo "<br>";
myCount();
?>
```

Output 5.4:

Output of myCount() with use of "static" Keyword:
0
1
2

PHP DATA TYPES

PHP can store data of different types and PHP supports following data types:

- **String**
- **Integer**
- **Float**
- **Boolean**
- **Array**
- **NULL**

- **One can check the data_type of variable using var_dump() method in PHP.**
- **var_dump() gives different output for each data_type.**

Program 5.5:

```
<?php
echo "<br> -- String --<br>";
$x = "Hello World !";
echo var_dump($x);
echo "<br> -- Decimal --<br>";
$x = "1234";
echo var_dump($x);
?>
```

Output 5.5:

```
—String—
string(12)" Hello world! "
—Decimal--
int(1234)
```

- **It gives length of the string for "string" data_type.**
- **It gives actual value of integer for "integer" data_type.**
- **It gives true/false for "boolean" data_type**

CONTROL STRUCTURES IN PHP

If STATEMENT : if STATEMENT ALLOWS PROGRAMMER to MAKE decision, BASED on one or more conditions; AND execute A piece of code CONDITIONALLY.

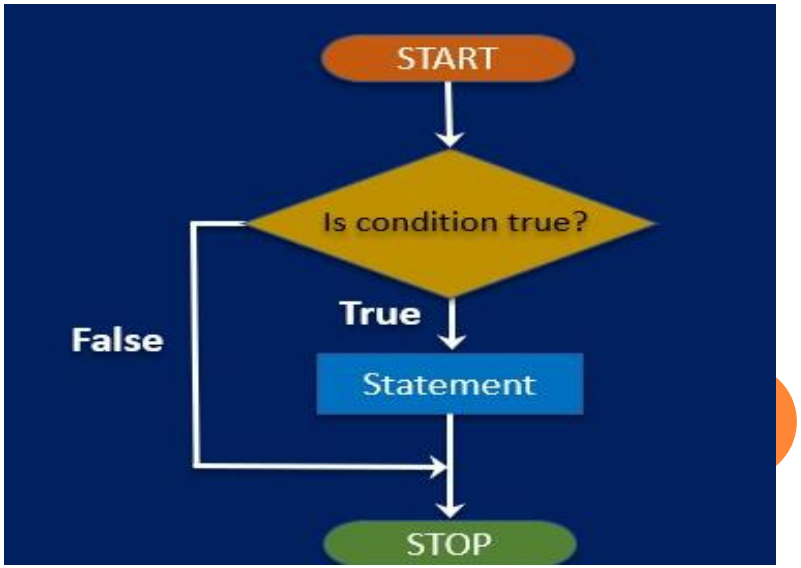
SYNTAX :

```
if(condition)
{
block of statement;
}
```

2. If-else statement: if-else statement allows programmer to make decision based on either this or that conditions.

Syntax:

```
if(condition)
{
        statement;
}
else
{
        statement
}
```



CONTROL STRUCTURES IN PHP

Program 5.6:

```
<?php
$marks=80;
if($marks>=60)
{ echo"you passed with first class";
}
else
{ echo"you can do better";
}
?>
```

Output 5.6:

you passed with first class

Program

```
1 <?php
2 $Number = 3;
3 if ( $Number == 3 ) {
4   echo "The Number is 3, so this part executed!";
5 } else {
6   echo "The Number is other than 3!";
7 }
8 ?>
```

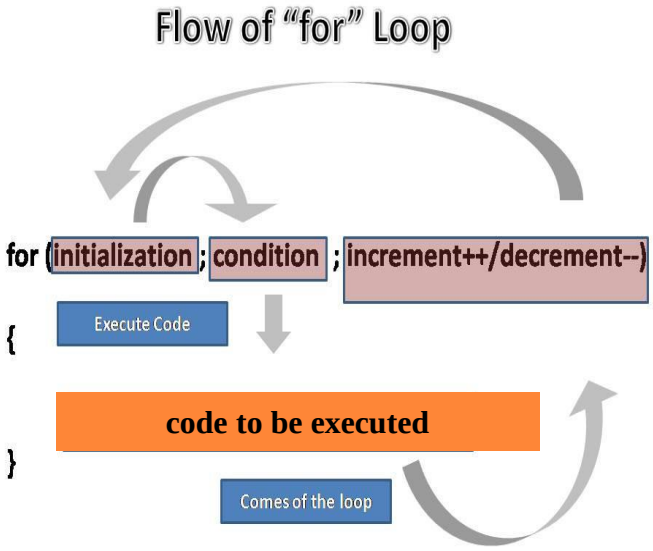
Output

for…….loop

Loops are used to execute the same block of code repeatedly as long as a certain condition is satisfied.

This loop executes statements as long as condition becomes true, for-loop is that it combines initialization, condition and loop iteration (increment or decrement) in single statement.

Syntax :



Program 5.7:

```
<?php
for($i=1;$i<=5;$i++)
{
  echo"The number is".$i."<br>";
}
?>
```

Output 5.7:

```
The number is:1
The number is:2
The number is:3
The number is:4
The number is:5
```

foreach…….loop

foreach loop: This loop work only on arrays, and is used to loop through each key/value pair in array.

Syntax:
```
foreach($array as $value)
        {
    code to be executed;
        }
```

NOTE: (.) is used for concatenation purpose.

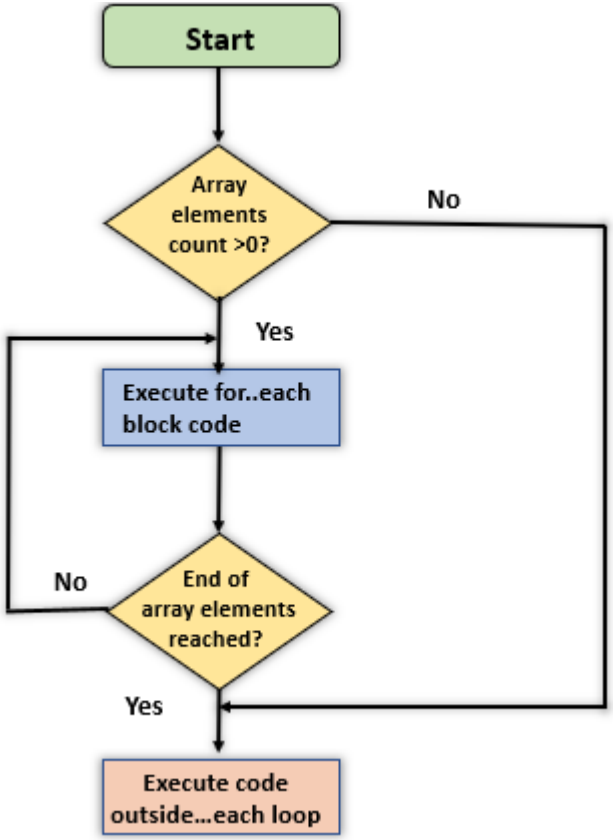
```php
<?php
$arr_numbers = array(5,10,15,20,25);

foreach($arr_numbers as $i){
    echo $i . "<br />";
}
?>
```

Output

localhost/foreach.php

Php using foreach

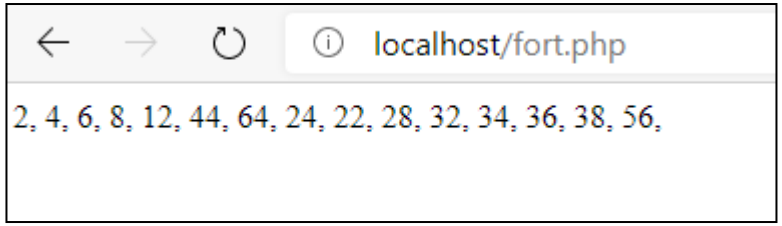
5
10
15
20
25



foreach…….loop

```
<?php
$array1 = array(1, 2, 3, 4, 6, 22, 32, 12, 11, 14, 16, 17, 18, 19, 28);
foreach ($array1 as $value1) {
$value1 = $value1 * 2;
echo $value1.", ";
}
?>
```

Output



Following are the few predefined functions in PHP to manipulate string.

Function	Description
strlen()	Returns the length of a string (i.e. total no. of characters)
str_word_count()	Counts the number of words in a string
strrev()	Reverses a string
strpos()	Searches for a specific text within a string and returns the character position of the first match and if no match is found, then it will return false
str_replace()	Replaces some characters with some other characters in a string
substr()	Returns a part of a string
strtolower()	Converts a string to lowercase
substr_count()	Counts the number of times a substring occurs in a string
ucwords()	Converts the first character of each word in a string to uppercase
trim()	Removes whitespace and other predefined characters from both sides of a string

Table 5.1: Pre-defined functions for string manipulation.

PHP STRING FUNCTION

- A string is series of character.
- The real power of PHP comes from its functions.
- A function is block of statement used repeatedly in a program.
- PHP has many built-in functions which can be called directly to perform a specific task.

Program 5.8:

```
<?php
$str="Textbooks produced by Balbharati
are also published in pdf format. ";
echo "<br>String: ".$str;
echo "<br>";
echo "<br>String Length : ".strlen($str);
echo "<br>";
echo "<br>String Word Count
: ".str_word_count($str);
echo "<br>";
echo "<br>Reverse String : ".
strrev($str);
echo "<br>";
echo "<br>Retrun position of string
search : ".strpos($str,"Balbharati");
echo "<br>";
echo "<br>Replace string :
".str_replace("Balbharati","State
Board",$str);
?>
```

Output 5.8:

String : Textbooks produced by Balbharati are also published in pdf format.

String Length : 67

String Word Count : 10

Reverse String : .tamrof fdp ni dehsilbup osla era itarahblaB yb decudorp skoobtxeT

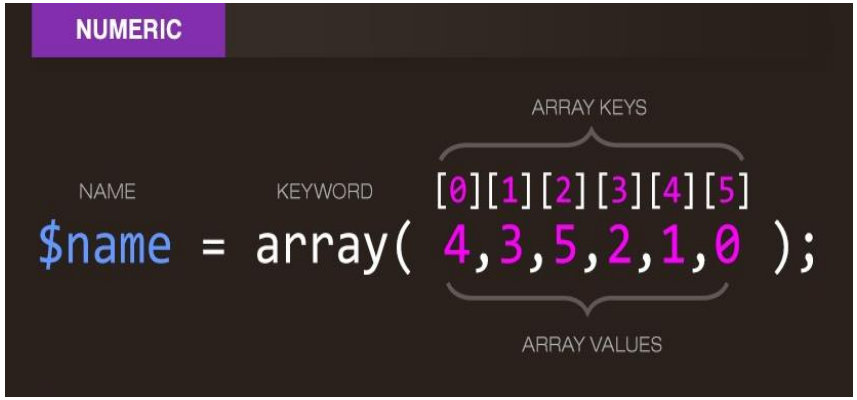
Return position of string search : 22

Replace string: Textbooks produced by State Board are also published in pdf format.

PHP ARRAY

- An array is a special variable which can hold more than a value at a time.
- An array stores multiple values in one single variable.
- The index can be assigned automatically.(index always starts with 0)

Syntax: $array_name=array(value1,value2,……., value n)




```
$cars = array("Volvo", "BMW", "Toyota");
$cars[0]= Volvo
$cars[1]= BMW
$cars[2]= Toyota
```

- There are 3 types of arrays
- **Indexed arrays** - Arrays with a numeric index
- **Associative arrays** - Arrays with named keys
- **Multidimensional arrays** - Arrays containing one or more arrays

Program 5.9:

```
<?php
$subjects = array("English", "Hindi",
"Marathi");
echo "I like ".$subjects[0].",
".$subjects[1]." and ".$subjects[2];
echo "<br> Count : ".count($subjects);
?>
```

Output 5.9:

```
I like English, Hindi and Marathi.
Count : 3
```

- In this example , we store subject is an array at following index location.

$subject[0]="English"
$subject[1]="Hindi"
$subject[2]="Marathi"

count() function is used to return the Length of array

PHP USER DEFINED FUNCTIONS

- A function is block of statement used repeatedly in a program.
- It will not execute immediately when a page loads but will be executed by a call to the function.
- Along with built-in PHP functions we can create our own functions.
- User-defined function starts with the word function.
- Information can be passed to functions through arguments.
- An argument is just a variable.
- Arguments are specified after the function name, inside brackets.

Syntax:

```
function fun_name()
{
        code to be executed
}
```

Note : A function name can start with a letter or underscore (not a number). Function names are NOT case-sensitive.

Program 5.12:

```
<?php
function writeMsg(){
echo "This is user-defined function";
}
writeMsg();   //call the function
?>
```

Output 5.12:

```
This is user-defined function
```

Program 5.13:

```
<?php
function Student($rollno, $name){
echo "Roll No is $rollno and Name is
$name <br>";
}
Student(1,"Ashwini");
Student(2,"Raj");
Student(3,"Sonam");
?>
```

Output 5.13:

```
Roll No. is 1 and Name is Ashwini
Roll No. is 2 and Name is Raj
Roll No. is 3 and Name is Sonam
```

Note : String is written in double quotes.

Use return statement to return a value.

Program 5.14:

```
<?php
function sum(int $x, int $y) {
 $z = $x + $y;
 return $z;
}
echo "5 + 10 = " . sum(5, 10) . "<br>";
echo "7 + 13 = " . sum(7, 13) . "<br>";
echo "2 + 4 = " . sum(2, 4);
?>
```

Output 5.14:

```
5 + 10 = 15
7 + 13 = 20
2 + 4 = 6
```


Note : 'language' attribute of <Script> is replaced by 'type' attribute in all the programs as it is standardized.

PHP ASSOCIATIVE ARRAYS :

ASSOCIATIVE ARRAYS ARE ARRAYS THAT use NAMED keys INSTEAD of index to identify RECORD/VALUE.

Let us see how to CREATE ASSOCIATIVE ARRAY.

SYNTAX :

$a = array(key1 => value1, key2=>value2, ...,key n => value n)

```
<?php
$STUDENT_MARK =
ARRAY("ENGLISH"=>"75",
"Hindi" =>"64",
"MARATHI"=>"88");
echo "You HAVE scored ".$student_
MARK['ENGLISH']." in English .";
?>
```

You have scored 75 in English.

VALUES of 'STUDENT_MARK' ARRAY ARE stored in following WAY:

```
$STUDENT_MARK['ENGLish'] = "75"
$STUDENT_MARK['HINDI'] = "64"
$STUDENT_MARK['MARATHI'] = "88"
```

When to use GET?

- Information send from a form using GET method is visible to everyone.(names and values of variables are displayed on URL)

- It also has limit on amount of information to send. Because the variables are displayed in the URL ,it is possible to bookmark the page.

- It may be used to send some non-sensitive data.

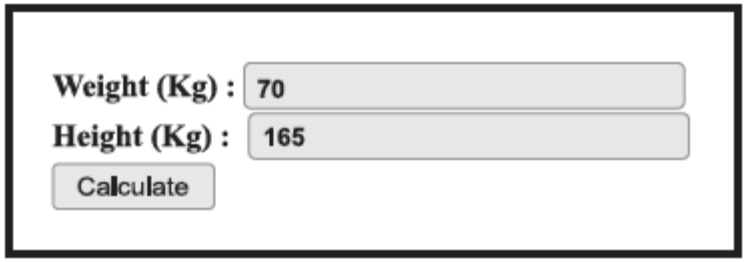
- It should never be used to for sending passwords or other sensitive information.

Let us see one program on "get" method

Program 5.16.1:

```
<html>
<head>
<title>BMI Calculator</title>
</head>
<body>
<form method="get"
action="bmioutput.php">

Weight (kg): <input name="weight"
id="weight" type="text" /> <br/>
Height (cm): <input name="height"
id="height" type="text" /> <br/>

<input name="submit" id="submit"
value="Calculate" type="submit" />

</form>
</body>
</html>
```

Output 5.16.1:



```
<?php
$height = $_GET["height"];
$weight = $_GET["weight"];
$heightInMs = $height/100;
$bmi = $weight/
($heightInMs*$heightInMs);

if($bmi < 18.5)
{
 $message = "You are underweight.";
}
else if($bmi >=18.5 && $bmi <= 24.9)
{
 $message = "Congrats!!! You have
normal weight.";
}
else if($bmi >24.9 && $bmi <=29.9)
{
 $message = "You are overweight.";
}
else
{
 $message = "Be careful!!! You are
obese.";
}

echo $message;
echo "</br> BMI : ".$bmi;
?>
```

Output 5.16.2:

You are over weight.
BMI : 25. 71162075298

Once you click on 'Calculate' button, the output is displayed as shown above.

When to use POST?

- Information send from a form using POST method is invisible to everyone.(all names and values are embedded within the body of the HTTP request.)
- It has no limit on amount of information to send.
- Moreover POST supports advanced functionality such as support for multi-part binary input while uploading files to the server.
- The variables are not passed in the URL so it is possible to bookmark the page.

A simple HTML form with 2 input fields and submit button code is as follows:

Program 5.15.1:

```
<html>
<body>
<form action="welcome.php"
method="post">
Name: <input type="text"
name="name"><br>
E-mail: <input type="text"
name="email"><br>
<input type="submit">
</form>
</body>
</html>
```

Output 5.15.1:

Program 5.15.2:

```
<html>
<body>
Welcome
<?php echo $_POST["name"]; ?> <br>
Your email address is:
<?php echo $_POST["email"]; ?>
</body>
</html>
```

Output 5.15.2:

Welcome balbharti Your email address is: balbharti@balbharati.in

Note : 'language' attribute of <Script> is replaced by 'type' attribute in all the programs as it is standardized.

Program 5.15.2:

```
<html>
<body>
Welcome
<?php echo $_POST["name"]; ?> <br>
Your email address is:
<?php echo $_POST["email"]; ?>
</body>
</html>
```

- When user fills out the form above and clicks the submit button , the form data is sent for processing to a PHP file names "welcome .php".
- The form data is sent with the HTTP POST method.
- The code for "welcome.php" looks like this

Output 5.15.2:

Welcome balbharti Your email address is: balbharti@balbharati.in

GET vs POST

- Both GET and POST are treated as $_GET and $_POST super globals, which means they are accessible ,regardless of scope.

- It can be accessed from function ,class or file without having to do anything special.

- $_GET is an array of variables passed via the URL parameters.

- $_POST is an array of variables passed via the HTTP POST method.

Summary

- PHP is widely-used open source server-side programming language which runs on various platforms.
- PHP is a script executed on server which generate dynamic HTML pages.
- The PHP code can also be embedded with HTML tags using <?php and ?>.
- PHP is case sensitive only at time of variable declaration and not-case sensitive for other keywords.
- PHP variable start with $ sign followed by name of variable which must start with a alpha-numeric characters or underscore character.
- PHP variable has three different scopes namely : local, global and static.
- PHP supports String, Integer, Float, Boolean, Array and NULL data types.
- Three types of Arrays are Indexed array, Associative array and Multi-dimensional array.
- PHP supports 'foreach' loop to iterate easily.
- String functions are used to manipulate strings.

Summary

- A function is a block of statements that can be used repeatedly in a program.
- Information can be passed to functions through arguments.
- Form is used to collect information from user and process or store in database.
- Form data can be submitted by GET or POST method.
- The PHP superglobals $_GET and $_POST are used to collect form-data.
- $_GET is an array of variables passed via the URL parameters and are visible to everyone.
- $_POST is an array of variables passed via the HTTP POST method and are invisible to others.
- GET has limits on the amount of information to send whereas POST has no limits on the amount of information to send.
- GET should NEVER be used for sending sensitive information.
- Cookies are sent along when browser requests server pages.
- Session helps web application to maintain user information on all the pages.

Thank you !