CHAPTER 4

INTRODUCTION TO HYPERTEXT PRE-PROCESSOR

PART I

1. Hypertext Preprocessor & Personal Home Page
2. .php
3. <?php ?>
4. Apache and IIS
5. (ii) , (iii) and (iv)
6. (i) num = 41 (ii) **$num = 41** (iii) echcho num (iv) echo 41
   Only (ii) is the answer.
7. 1 + 2
8. (a), (b) and (c)
9. echo"\$x";
10. \n

PART II

1. What are the common usages of PHP?

- It is very simple and lightweight open source server side scripting language.
- It can easily embed with HTML and other client side scripting languages like CSS (Cascading Style Sheets) and Java script.
- It also creates dynamic and interactive Webpages in the real time Web development projects.

2. What is Webserver?

- Webserver is software which is running in server hardware.
- It takes the responsibilities for compilation and execution of server side scripting languages.
- A Web server is a Software that uses HTTP (Hypertext Transfer Protocol) to serve the files that form Web pages to user.
- Example: Apache Tomcat, Microsoft IIS

3. What are the types scripting language?

- Web scripting languages are classified into two types,
- Client side scripting language
- Server side scripting language.

4. **Difference between Client and Server?**

CLIENT	SERVER
The client is a separate hardware machine which is connected with server in the network.	The server is a high performance hardware machine it could run more than one application concurrently.
Client is a service requester	Server is a service provider
Example: CSS (Cascading Style Sheets) and Java script	Example: ASP (Active Server Page) and JSP (Java Server page)

5. **Give few examples of Web Browser?**
   - Google Chrome
   - Mozilla Firefox
   - Opera
   - Safari
   - Internet Explorer
   - Netscape Navigator
6. **What is URL?**
   - URL means Uniform Resource Locator.
   - It is the address of a resource on the internet.
   - It indicates the location of a resource and the protocol used to access it.
   - Example: https://www.google.com/
7. **Is PHP a case sensitive language?**
   - Yes, PHP is a case sensitive language both upper and lower case are treated differently.
   - Example: $x and $X are different variable names.
8. **How to you declare variables in PHP?**
   - The variable in PHP begins with a dollar ($) symbol.
   - The assignment activity implemented using "=" operator.
   - Finally the statement ends with semi colon ";", it indicates the end of statement.
   - Example: $x=5;

9. Define Client Server Architecture.

- A server is a computer or a device that provides functionality for other programs or devices, called as "clients". This architecture is called the client server model.
- A single overall computation is distributed across multiple processes or devices.
- The client server architecture introduces application sharing mechanism between two different hardware systems over the network (Internet/intranet).

PART III

1. Write the features of server side scripting language.

- Server-side scripting prevents increasing of the load as it does not require browser scripting technology.
- Server-side scripting is necessary to run dynamic pages on browsers.
- Server-side scripting does not depend on browser processing as all the processing is performed on the server side.
- As the scripting is done on the server, it is not sent back to the browser, which prevents it from hacking vulnerabilities. An increased security is ensured for user privacy.
- Loading time of the web pages is often reduced with Server-side scripting.

2. Write the purpose of Web servers.

- Web server software that runs on server hardware, governs the server side scripting compilation into an intermediate byte-code that is then interpreted by the runtime engine.
- Example: Tomcat Apache, Nginx etc.

3.Differentiate Server side and Client Side Scripting language.

Server Side Scripting Language	Client Side Scripting Language
Works on the server machine which could not be visible at the client end and it is relatively secure.	Works at the client machine and script are visible among the users and insecure.
Requires server interaction	Does not need server interaction
Service Provider	Service Requester
PHP, ASP.net, Ruby,etc	HTML, CSS, JavaScript,etc

4. In how many ways you can embed PHP code in an HTML page?

- PHP is designed to interact with HTML and PHP scripts.
- PHP can be included in an HTML page without a problem.
- Three types of PHP Syntax are available.

  1. Default Syntax
  2. Short open Tags
  3. HTML Script embed Tags

- **Default Syntax:** The default Syntax begins with "<?php" and closes with "?>".
- **Short open Tags:** The Short open Tags begins with "<?" and closes with "?>". But admin user has to enable Short style tags settings in php.ini file on the server.
- **HTML Script embed Tags:** HTML Script embed Tags looks just like HTML scripts tags.

5. Write short notes on PHP operator.

- Operator is a symbol which is used to perform mathematical and logical operations in the programming languages.
- Different types of operator in PHP are:

  1. Arithmetic operators (+ , -, *, /, %)
  2. Assignment operators (=, +=, -=, *=, /=)
  3. Comparison operators (< , >, >=, <=, ==, ===, !==, < >)
  4. Increment/Decrement operators (++, --)
  5. Logical operators (&&, ||, !, xor)
  6. String operators (. , .=)

PART IV

1. Explain the client side and server side scripting language.

Web scripting languages are classified into two types, client side and server side scripting language.

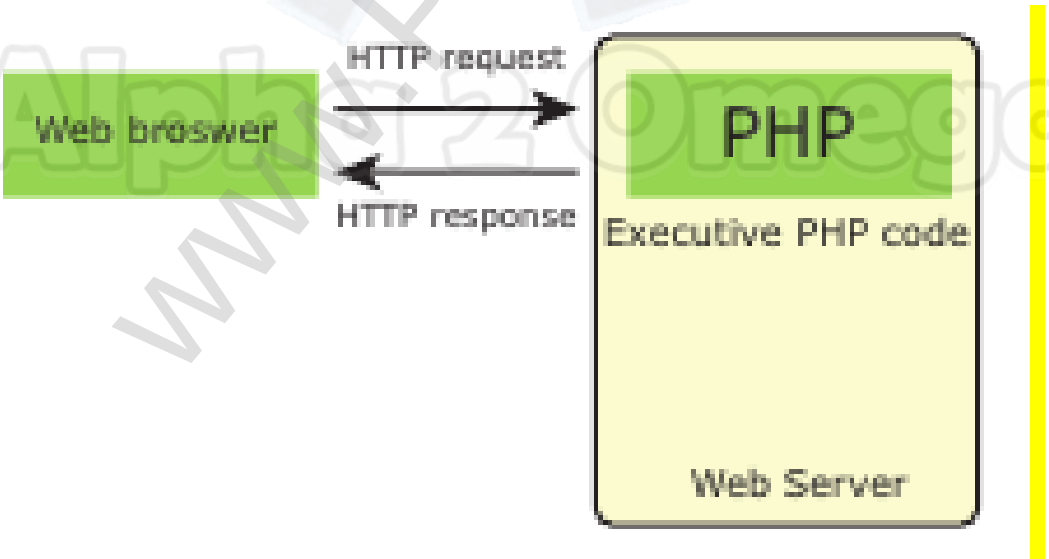
Server Side Scripting Language:

- PHP is a very simple and lightweight open source Server Side Scripting Language used in a server machine.
- **PHP (Hypertext Pre-processor)** is a one of the important server side Web and general purpose scripting language invented by Rasmus Lerdorf in 1994.

- It can easily embed with HTML and other client side scripting languages like CSS and Java script.
- It also creates dynamic and interactive Webpages in the real time projects.
- PHP scripting language can be executed via an interpreter which is installed in the Webservers or CGI (Common Gateway Interface). The most of the Webservers supports the PHP interpreter module.
- The PHP code entirely executes on Webserver which is installed in the remote machine and it is generating HTML code which is sent to the user.

Client Side Scripting Language:

- Using HTML we can develop static web pages.
- JavaScript is a Client Side Scripting Language used in a client machine and can be embedded into the HTML.
- To develop an interactive pages (Dynamic Web page) we need a scripting language.
- User entered data in the Dynamic Web page can be validated before sending it to the server.
- This saves server traffic, which means less load on your server.
- JavaScript includes such items as Textboxes, Buttons, drag-and-drop components and sliders to give a Rich Interface to site visitor

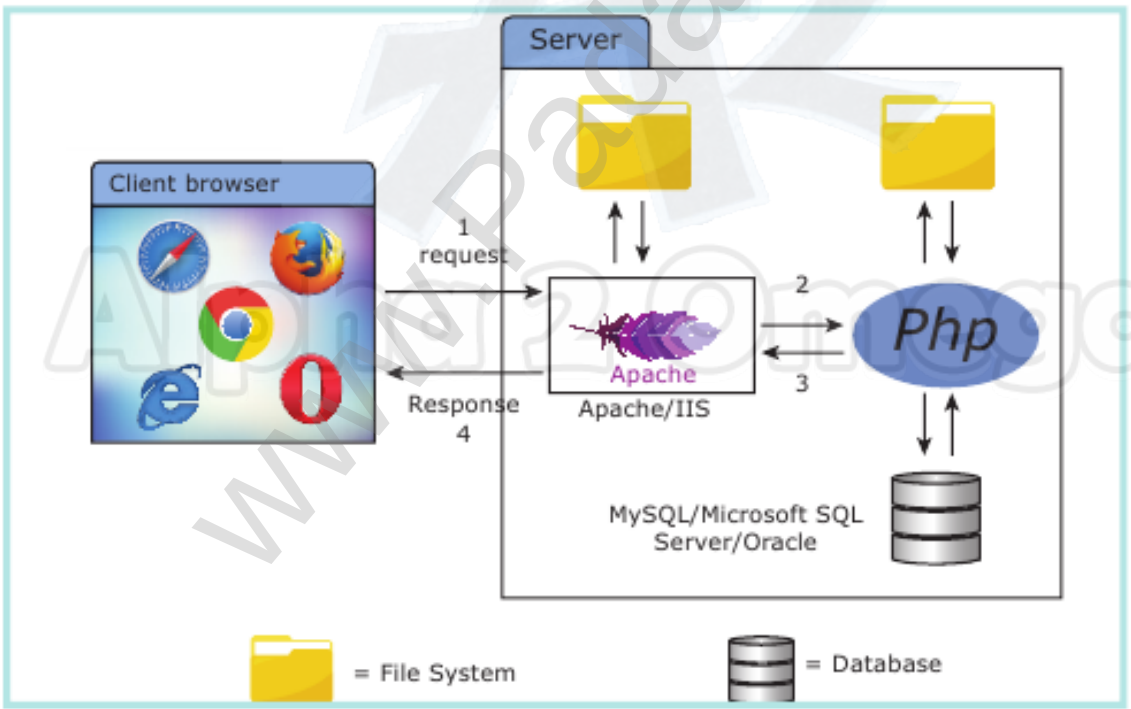


2. Discuss in detail about Website development activities.

- The process of Web Development also includes Web content generation, Web page designing, Website security and so on.

  PHP Script used in Web Development:

- Website or Web page is developed by the programmer using PHP script. Finally the entire Website codes are moved to Web server path in a remote server machine.
- From client side, the end user opens a browser, types the URL of the Website or Webpage and initiates the request to remote server machine over the network.
- After receiving the request from client machine the Web server tries to compile and interpret the PHP code which is available in remote machine.
- Next a response will be generated and sent back to the client machine over the network from Webserver.
- Finally the browser which is installed in the client machine receives the response and displays the output to user.



3. **Explain the process of Webserver installation.**

- Web server software such as Tomcat Apache, Nginx are available as open source or licensed version in the market.

Steps to install and configure Apache Httpd Webserver and PHP module in windows server machine.

Step 1:

- Go to Apache foundation Website and download the Httpd Webserver Software. **https://httpd.apache.org/download.cgi**

Step 2:

- After downloading . MSI file from Apache foundation Website, user launches the .MSI file and clicks next and next button to finish the installation on server machine.
- The software takes default port number 130 or 130130.
- Once the user finished, the Web server software is installed and configured on server hardware machine as a service.

Step 3:

- To test the installation of Apache Httpd Webserver, enter the following URL from your Web browser which is installed in your client machine. **https://localhost:130/ or https://localhost:130130**

The output page that says "Its works"

Step 4:

- Administrator user can start, stop and restart the Web server service at any time via windows Control panel.
- Once the services stops, the client machine will not receive the response message from server machine.

Step 5:

- Webservers configuration setting file "httpd.conf " is located in the **conf** directory under the apache installation directory.
- Edit this file and enable the PHP module to run PHP scripting language.

4. **Discuss in detail about PHP data types.**

- PHP scripting language supports 13 primitive data types.

- PHP supports the following data types.
  1. String
  2. Integer
  3. Float
  4. Boolean
  5. Array
  6. Object
  7. NULL
  8. Resource

1. String:

• String is a collection of characters within the double or single quotes like "Computer Application" or 'Computer Application'. Space is also considered as a character.

Example:

$x = "Computer Application!";

$y = „Computer Application";

2. Integer:

• Integer is a data type which contains non decimal numbers.

Example: $x = 5;

3. **Float:**

• Float is a data type which contains decimal numbers.

Example: $x = 19.15;

4. Boolean:

• Boolean is a data type which denotes the possible two states, TRUE or FALSE.

Example: $x = true;

5. **Array:**

• Array is a data type which has multiple values in single variable.

Example: $cars = array("Swift","BMW","Alto");

var_dump($cars);

var_dump ( ) function is used to display structured information such as type and value of the given variable.

6. **Object:**

• PHP object is a data type which contains information about data and function inside the class.

7. **NULL:**

• Null is a special data type which contains a single value: NULL

Example: $x = null;

8.**Resources:**

• Resource is a specific variable, it has a reference to an external resource.

• These variables hold specific handlers to handle files and database connections in respective PHP program.

5. Explain operators in PHP with example.

• Operator is a symbol which is used to perform mathematical and logical operations in the programming languages.

• Different types of operator in PHP are:

1. Arithmetic operators,

2. Assignment operators,

3. Comparison operators,

4. Increment/Decrement operators,

5. Logical operators, and

6. String operators.

Arithmetic operators

• The arithmetic operators in PHP perform general arithmetical operations, such as addition, subtraction, multiplication and division etc.

Symbol	Operator Name	Purpose
+	Addition	This operator performs the process of adding numbers
-	Subtraction	This operator performs the process of subtracting numbers
*	Multiplication	This operator performs the process of multiplying numbers
/	Division	This operator performs the process of dividing numbers
%	Modulus	This operator performs the process of finding remainder in division operation of two numbers

Assignment Operators:

- Assignment operators are performed with numeric values to store a value to a variable.
- The default assignment operator is "=".
- This operator sets the left side operant value of expression to right side variable.

Assignment	Similar to	Description
x = y	x = y	This operator sets the left side operant value of expression to right side variable
x += y	x = x + y	Addition
x -= y	x = x - y	Subtraction
x *= y	x = x * y	Multiplication
x /= y	x = x / y	Division
x %= y	x = x % y	Modulus

Comparison Operators:

- Comparison operators perform an action to compare two values.
- These values may contain integer or string data types (Number or Strings).

Assignment	Similar to	Description
x = y	x = y	This operator sets the left side operant value of expression to right side variable
x += y	x = x + y	Addition
x -= y	x = x - y	Subtraction
x *= y	x = x * y	Multiplication
x /= y	x = x / y	Division
x %= y	x = x % y	Modulus

Increment and Decrement Operators:

- Increment and decrement operators are used to perform the task of increasing or decreasing variable's value.
- This operator is mostly used during iterations in the program logics.

Operator	Name	Description
++$x	Pre-increment	Increments $x value by one, then returns $x
$x++	Post-increment	Returns $x, then increments $x by one
--$x	Pre-decrement	Decrements $x by one, then returns $x
$x--	Post-decrement	Returns $x, then decrements $x by one

Logical Operators:

- Logical operators are used to combine conditional statements.

Symbol	Operator Name	Example	Result
&&	And	$x && $y	True if both $x and $y are true
||	Or	$x || $y	True if either $x or $y is true
!	Not	!$x	True if $x is not true
xor	Xor	$x xor $y	True if either $x or $y is true, but not both

String Operators:

- Two operators are used to perform string related operations such as concatenation and concatenation assignment (Appends).

Operator	Name	Example	Result
.	Concatenation	$text1 . $ text2	Concatenation of $txt1 and $txt2
.=	Concatenation assignment	$text1 .= $ text2	Appends $txt2 to $txt1

CHAPTER 5

PHP FUNCTION AND ARRAY

PART I

1. function function Name(parameters) {function body}
2. function
3. 0
4. $x
5. Array
6. Key value
7. Variables
8. 3
9. Associative Array
10. 3

PART II

1. **Define Function in PHP.**
   - A function is a block of segment in a program that performs a specific operation or tasks.
   - It is a type of sub routine or procedure in a program.
   - Functions are reusable; i.e a task can be executed any number of times.
2. **Define User defined Function.**
   - User Defined Function (UDF) in PHP allows user to write own specific operation inside of existing program module.
   - A user-defined Function declaration begins with the keyword “function”.
   - **SYNTAX:**

```
function functionName()
{
  Custom Logic code to be executed ;
}
```

3. **What is parameterized Function?**
   - PHP Parameterized functions are the functions with parameters or arguments.
   - Values can be passed from one function to another function through parameters otherwise called as arguments or variables.

- The arguments are mentioned after the function name and inside of the parenthesis.
- There is no limit for sending arguments, just separate them with a comma notation.

4. **List any 2 Pre-defined or System defined Functions.**

• A built in function that can be called directly within a script to perform a specific task is called Pre-defined functions.

• *Examples:*

- PHP math function - sqrt( ) , sin( ) , cos( )
- PHP string function – sscanf( ), sprint( )
- PHP MYSQLi function – mysqli_connect( ) , mysqli_query( )

5. **Write the Syntax to define Function in PHP.**

• **SYNTAX:**

function functionName( )

{

Custom Logic code to be executed;

}

6. **Define Array in PHP.**

• An array is a special variable, which can hold more than one value of same data type (homogeneous) in single array variable.

• There are 3 types of array concepts in PHP.

● Indexed Arrays,

● Associative Array and

● Multi-Dimensional Array.

7. **What is a function call?**

- Once a function is defined, it is executed by a function call.
- The programmer has to give a function call inside the respective program.
- **SYNTAX:**

functionName();

8. **List out the types of arrays in PHP.**

Associative Array → Associative arrays are arrays that use named keys that you assign to them.

Indexed Arrays → The index can be assigned automatically in a collection of data set.

Multi-Dimensional Array → A multidimensional array is an array containing one or more arrays.

9. **Define associative array.**

- Associative arrays are a key-value pair data structure.
- Instead of storing data in a linear array, with associative arrays you can store your data in a collection and assign it a unique key which you may use for referencing your data.

10. **What are indexed arrays?**

- An array is defined using the keyword "array".
- Each element of line array is assigned on index values which commences from O and ends with n-1.
- The user can access the array element using the array name followed by index value.

PART III

1. **Write the features of Built-in Functions.**

5. **Write a note on pre-defined or built-in functions.**

- Pre-defined or system or built in function PHP has a wide collection of built-in functions that can be called directly from within a script, to perform a specific task.
- A function already created by system it is a reusable piece or block of code that performs a specific action.
- These built in functions are what which makes PHP a very efficient and productive language.
- Functions can either return values when called or can simply perform an operation without returning any value.
- PHP is a Scripting language, so no installation is required to use these functions.
- **Examples:** round( ), sqrt( ), echo( ), strlen( )

2. Write the purpose of parameterized functions.

- Values can be passed from one function to another function through parameters.

  The parameter is also called as arguments, it is like variables.

- The arguments are mentioned after the function name and inside of the parenthesis.

- There is no limit for sending arguments, just separate them with a comma notation.

- **Example**: function School_Name ($name , $class)

```
{
    .......
    .......
}
```

3. Differentiate user define and system define functions.

System Define Functions	User Define Functions
A function is already created by system to perform specific task	User create their own functions based on their needs
They are embedded in language and are provided by compiler.	They are provided by user from an external library
Examples: round( ), sin( ), date( )	Examples: area( ), display( )

4. Write short notes on Array.

- Array is a special variable which can hold more than one value of same data type (homogeneous) in single array variable.
- They are 3 types of array concepts in PHP.
- **Associative Array** → Associative arrays use named keys that we assign to them.
- **Indexed Arrays** → The index can be assigned automatically in a collection of data set.
- **Multi-Dimensional Array** → A multidimensional array is an array containing one or more arrays.

PART IV

1. **Explain the function concepts in PHP.**

- A function is a block of segment in a program that performs a specific operation or tasks
- It is a type of sub routine or procedure in a program.
- Functions are reusable. i.e a task can be executed any number of times.
- A Function will be executed by a call to the Function and the Function returns any data type values or NULL value to called Function in the part of respective program.
- The Function can be divided in to three types as follows:
  - User defined Function,
  - Pre-defined or System or built-in Function, and
  - Parameterized Function.

User Defined Function:

- User Defined Function (UDF) in PHP gives a privilege to user to write own specific operation inside of existing program module.
- Two important steps the Programmer has to create for users define Functions are:
  Function Declaration
- A user-defined Function declaration begins with the keyword "function".
- User can write any custom logic inside the function block.
- **SYNTAX:**

```
function functionName( )
{
Custom Logic code to be executed;
}
```

- ***Function Calling:***

  A function declaration part will be executed by a call to the function. Programmer has to create Function Calling part inside the respective program.

- **SYNTAX:**

```
functionName();
```

- **Example:**

```
< ?php
function insertMsg( )
{
```

```
    echo "Student Details Inserted Successfully!";
}
insertMsg();        // call the function
? >
```

System Defined Function:

- A function is already created by system are called system defined functions.
- They are embedded in language and are provided by compiler.
- *Examples:* round( ), sqrt( ), echo( ), strlen( )

Parameterized Defined Function:

- PHP Parameterized functions are the functions with parameters or arguments.
- There is no limit for sending arguments, just separate them with a comma notation.

2. **Discuss in detail about User Defined Functions.**

Function:

- A function is a block of segment in a program that performs a specific operation or tasks
- It is a type of sub routine or procedure in a program.
- Functions are reusable. i.e a task can be executed any number of times.

User Defined Function:

- User Defined Function (UDF) in PHP gives a privilege to user to write own specific operation inside of existing program module.
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}
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Function Calling:

A function declaration part will be executed by a call to the function. Programmer has to create Function Calling part inside the respective program.

- **SYNTAX:**

  functionName();

- **Example:**

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

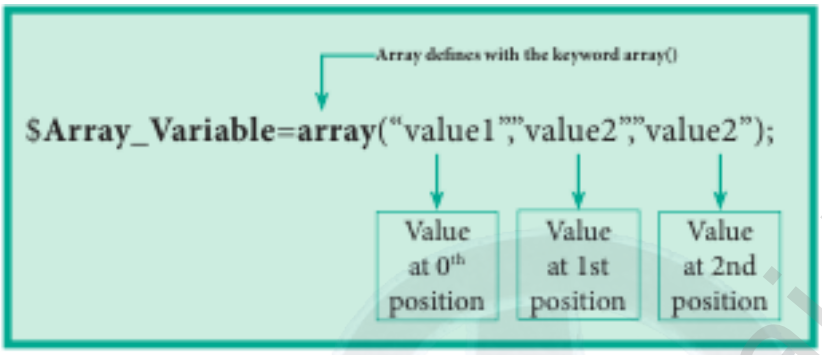
3. Explain the Multidimensional Array.

- A multidimensional array is an array containing one or more arrays.
- PHP understands multidimensional arrays that are two, three, four, five, or more levels deep. However, arrays more than three levels deep are hard to manage for most people.
- Each array within the multidimensional array can be either indexed array or associative array.
- We can use for looping through indexed array and foreach looping through associative array.
- **Example:**

```
<?php
$student=array
(
array("Iniyan",100,96),
array("Kavin",60,59),
array("Nilani",1313,139)
);
echo $student[0][0].": Tamil Mark: ".$student [0][1].". English mark: ".$student [0][2]."<br>";
echo $student[1][0].": Tamil Mark: ".$student [1][1].". English mark: ".$student [1][2]."<br>";
echo $student[2][0].": Tamil Mark: ".$student [2][1].". English mark: ".$student [2][2]."<br>";
?>
```

4. **Explain Array concepts and their types.**

- Array is a special variable which can hold more than one value of same data type (homogeneous) in single array variable.
- They are 3 types of array concepts in PHP.
- **Array Syntax:**



Indexed Arrays:

- Arrays with numeric index for the available values in array variable which contains key value pair as user / developer can take the values using keys.
- **Example:**

```
<?php
  $name=array("Iniyan", "Kavin", "Nilani");
  echo "The students name are " . $name[0] . ", " . $name[1] . " and " . $name[2] . ".";
?>
```

Associative Arrays:

- Associative arrays are a key-value pair data structure.
- Instead of having storing data in a linear array, with associative arrays you can store your data in a collection and assign it a unique key which you may use for referencing your data.
- **Syntax:**

  An Array is defined ( ).

  array(key=>value,key=>value,key=>value,etc.);

  key = Specifies the key (numeric or string)

  value = Specifies the value

- **Example:**

```
<?php
  $Marks=array("Student1"=>"35","Student2"=>"17","Student3"=>"43");
  echo "Student1 mark is" . $Marks['Student1'] . " is eligible for qualification";
  echo "Student2 mark is" . $Marks['Student2'] . " is not eligible for qualification";
?>
```

Multidimensional Arrays:

- A multidimensional array is an array containing one or more arrays.
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echo $student[2][0].": Tamil Mark: ".$student [2][1].". English mark: ".$student [2][2]."<br>";
?>
```

5. **Explain Indexed array and Associative array in PHP.**

Indexed Arrays:

- Arrays with numeric index for the available values in array variable which contains key value pair as user / developer can take the values using keys.
- **Example:**

```
<?php
  $name=array("Iniyan", "Kavin", "Nilani");
  echo "The students name are " . $name[0] . ", " . $name[1] . " and " . $name[2] . ".";
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Associative Arrays:

- Associative arrays are a key-value pair data structure.
- Instead of having storing data in a linear array, with associative arrays you can store your data in a collection and assign it a unique key which you may use for referencing your data.
- **Syntax:**

```
array(key=>value,key=>value,key=>value,etc.);
        key = Specifies the key (numeric or string)
        value = Specifies the value
```

- **Example:**

```
<?php
  $Marks=array("Student1"=>"35","Student2"=>"17","Student3"=>"43");
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  echo "Student2 mark is" . $Marks['Student2'] . " is not eligible for qualification";
?>
```