

Web Technology

Unit IV- Server Side Technologies (PHP)

Outline

PHP

WAP & WML,

AJAX

PHP

Outline

Introduction to PHP,

Features,

sample code,

PHP script working,

PHP syntax,

conditions & Loops,

Functions,

String manipulation,

Arrays & Functions,

Form handling,

Cookies & Sessions,

using MySQL with PHP,

Introduction to PHP

- PHP is an acronym for "PHP: Hypertext Preprocessor"
- PHP is a widely-used, open source scripting language
- PHP scripts are executed on the server
- PHP is free to download and use
- **What is a PHP File?**
- PHP files can contain text, HTML, CSS, JavaScript, and PHP code
- PHP code are executed on the server, and the result is returned to the browser as plain HTML
- PHP files have extension ".php"

Introduction to PHP

- **What Can PHP Do?**
- PHP can generate dynamic page content
- PHP can create, open, read, write, delete, and close files on the server
- PHP can collect form data
- PHP can send and receive cookies
- PHP can add, delete, modify data in your database
- PHP can be used to control user-access
- PHP can encrypt data
- With PHP you are not limited to output HTML. You can output images, PDF files, and even Flash movies. You can also output any text, such as XHTML and XML.

Features of PHP

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

PHP Syntax

- **Basic PHP Syntax**
- A PHP script can be placed anywhere in the document.
- A PHP script starts with `<?php` and ends with `?>`:
- `<?php
// PHP code goes here
?>`
- The default file extension for PHP files is ".php".

sample code –

Example 1 to print Hello World using PHP

- <!DOCTYPE html>

```
<html>
```

```
<body>
```

```
<h1>My first PHP page</h1>
```

```
<?php
```

```
echo "Hello World!";
```

```
?>
```

```
</body>
```

```
</html>
```

sample code –

Example 2 variable declaration

```
<html>
<body>

<?php
$txt = "Hello world!";
$x = 5;
$y = 10.5;

echo $txt;
echo "<br>";
echo $x;
echo "<br>";
echo $y;
?>

</body>
</html>
```

Out Put

```
"Hello world!"
5
10.5
```

PHP Variables

- **Rules for PHP variables:**
 - A variable starts with the \$ sign, followed by the name of the variable
 - A variable name must start with a letter or the 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 _)
 - Variable names are case-sensitive (\$age and \$AGE are two different variables)

sample code –

Example 3- To output text and a variable

- <html>
<body>

<?php
\$txt = "W3Schools.com";
echo "I love \$txt";
?>

</body>
</html>
- <html>
<body>

<?php
\$txt = "W3Schools.com";
echo "I love " . \$txt . ;
?>

</body>
</html>



I love W3Schools.com!

Program for addition of two numbers

- <body>
- <?php
- \$n1=5;
- \$n2=6;
- \$sum=\$n1+\$n2;
- Echo “Summation is”.\$sum;
- ?>
- </body>

PHP Variables Scope

- In PHP, variables can be declared anywhere in the script.
- The scope of a variable is the part of the script where the variable can be referenced/used.
- PHP has three different variable scopes:
 - local
 - global
 - static

PHP Variables Scope- Global and Local Scope

Example

```
<?php  
$x = 5; // global scope  
  
function myTest() {  
    echo "Variable x inside function is: $x";  
}  
  
myTest();  
  
echo "Variable x outside function is: $x";  
?>
```

Out put

- Variable x inside function is:
- Variable x outside function is: 5

A variable declared **outside** a function has a **GLOBAL SCOPE** and can only be accessed outside a function:

PHP Variables Scope- Global and Local Scope

Example

```
<?php  
function myTest()  
{  
    $x = 5; // local scope  
    echo "Variable x inside function is: $x";  
}
```

```
myTest();  
echo "Variable x outside function is: $x";  
?>
```

Out put

- Variable x inside function is: 5
- Variable x outside function is:

A variable declared **within** a function has a LOCAL SCOPE and can only be accessed within that function:

PHP Variables Scope- The **global** Keyword

Example

```
<?php  
$x = 5;  
$y = 10;  
  
function myTest() {  
    global $x, $y;  
    $y = $x + $y;  
}  
  
myTest(); // run function  
echo $y; // output the new value for variable $y  
?>
```

Out put

15

The **global** keyword is used to access a global variable from within a function

PHP Comparison Operators

Operator	Name	Example	Result
<code>==</code>	Equal	<code>\$x == \$y</code>	Returns true if <code>\$x</code> is equal to <code>\$y</code>
<code>===</code>	Identical	<code>\$x === \$y</code>	Returns true if <code>\$x</code> is equal to <code>\$y</code> , and they are of the same type
<code>!= <></code>	Not equal	<code>\$x != \$y</code>	Returns true if <code>\$x</code> is not equal to <code>\$y</code>
<code>></code>	Greater than	<code>\$x > \$y</code>	Returns true if <code>\$x</code> is greater than <code>\$y</code>
<code><</code>	Less than	<code>\$x < \$y</code>	Returns true if <code>\$x</code> is less than <code>\$y</code>
<code>>=</code>	Greater than or equal to	<code>\$x >= \$y</code>	Returns true if <code>\$x</code> is greater than or equal to <code>\$y</code>
<code><=</code>	Less than or equal to	<code>\$x <= \$y</code>	Returns true if <code>\$x</code> is less than or equal to <code>\$y</code>

Outline

Introduction to PHP,

Features,

sample code,

PHP script working,

PHP syntax,

conditions & Loops,

Functions,

String manipulation,

Arrays & Functions,

Form handling,

Cookies & Sessions,

using MySQL with PHP,

Conditions and Loops

Conditional Statements

- If else
- Elseif ladder
- Switch case

Loop Statements

- While
- Do while
- For
- Foreach

If...else

Syntax

- If(condition)
- statements;
- else
- statements;

Example

- <body>
- <?php
- \$n=5;
- If(\$n%2 == 0)
- Echo “Number is Even”;
- Else
- Echo “Number is Odd”;
- ?>
- <body>

Elseif

Syntax

- If(condition)
- statements;
- Elseif(condition)
- statements;
- Else
- statements;

Example

- <body>
- <?php
- \$day=date("l");
- If(\$day == "Saturday")
- Echo "Happy Weekend";
- Elseif(\$day == "Sunday")
- Echo "Happy Sunday";
- Else
- Echo "Nice Working day";
- ?>
- <body>

Switch case

Syntax

- Switch(expression)
- {
- Case constant_expression:
 - statements;
 - break;
- Default:
 - statements;
- }

Example

- <?php
\$favcolor = "red";
switch (\$favcolor) {
 - case "red":
echo "Your favorite color is red!";
break;
 - case "blue":
echo "Your favorite color is blue!";
break;
 - default:
echo "Your favorite color is neither
red, blue!";
}?>

While Loop

Syntax

- while (condition is true) {
- code to be executed;
- }

Example

```
• <?php  
$x = 1;  
  
while($x <= 5) {  
    echo "The number is: $x <br>";  
    $x++;  
}  
?>
```

Do-While Loop

Syntax

- do {
 code to be executed;
} while (condition is true);

Example

```
<?php  
$x = 1;  
do {  
    echo "The number is: $x <br>";  
    $x++;  
} while ($x <= 5);  
?>
```

For Loop

Syntax

- `for (init counter; test counter;
increment counter)`
- `{
 code to be executed;
}`

Example

```
• <?php  
    for ($x = 0; $x <= 10; $x++)  
    {  
        echo "The number is: $x <br>";  
    }  
?>
```

Foreach Loop

Syntax

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

Example

- `<?php
$colors = array("red", "green", "blue");
foreach ($colors as $value)
{
 echo "$value
";
}
?>`

Outline

Introduction to PHP,

Features,

sample code,

PHP script working,

PHP syntax,

conditions & Loops,

Functions,

String manipulation,

Arrays & Functions,

Form handling,

Cookies & Sessions,

using MySQL with PHP,

User Defined Functions

Syntax	Example
<ul style="list-style-type: none">• function <i>functionName()</i> { <i>code to be executed;</i> }	<ul style="list-style-type: none">• <body> <pre><?php function writeMsg() { echo "Hello world!"; } writeMsg(); ?></pre> </body>

Parameterized Functions

Example

- <html>
- <body>
- <?php

```
function Add($a,$b) {  
    $sum=$a+$b;  
    echo "Sum is $sum";  
}
```

```
Add(10,20);  
?>
```

- </body>
- </html>

Output

- Sum is 30

Returning value through function

Example

```
• <html>
• <body>
• <?php
function Add($a,$b) {
    $sum=$a+$b;
    return $sum;
}
```

```
$Result=Add(10,20);
echo "Sum is $Result";
```

```
?>
```

```
• </body>
• </html>
```

Output

- Sum is 30

Setting default values for function parameter

Example

```
<html>
<body>
<?php
function Add($a,$b=300)
{
    $sum=$a+$b;
    echo "Sum is $sum";
}
Add(10);
Add(10,20);
?>
</body>
</html>
```

Output

- Sum is 310
- Sum is 30

Dynamic Function Calls

Example

```
<<html>
<body>
<?php
function Hello() {
echo "Hello How R U?";
}
$fh = "Hello";
$fh();
?>
</body>
</html>
```

Output

Hello How R U?

Outline

Introduction to PHP,

Features,

sample code,

PHP script working,

PHP syntax,

conditions & Loops,

Functions,

String manipulation,

Arrays & Functions,

Form handling,

Cookies & Sessions,

using MySQL with PHP,

String Manipulation

String Manipulation Function	Description	Example
strlen()	returns the length of a string	<?php echo strlen("Hello world!"); ?> <i>// outputs 12</i>
str_word_count()	counts the number of words	<?php echo str_word_count("Hello world!"); ?> <i>// outputs 2</i>
strrev()	reverses a string	<?php echo strrev("Hello world!"); ?> <i>// outputs !dlrow olleH</i>
strpos()	searches for a specific text within a string.	<?php echo strpos("Hello world!", "world"); ?> <i>// outputs 6</i>
str_replace()	replaces some characters with some other characters in a string.	<?php echo str_replace("Ram", "Holly", "Hello Ram"); ?> <i>// outputs Hello Holly!</i>

Outline

Introduction to PHP,

Features,

sample code,

PHP script working,

PHP syntax,

conditions & Loops,

Functions,

String manipulation,

Arrays & Functions,

Form handling,

Cookies & Sessions,

using MySQL with PHP,

Arrays

- **Create an Array in PHP**
- In PHP, the array() function is used to create an array:
 - `array();`
- In PHP, there are three types of arrays:
 1. **Indexed arrays** - Arrays with a numeric index
 2. **Associative arrays** - Arrays with named keys
 3. **Multidimensional arrays** - Arrays containing one or more arrays

Arrays- Indexed Arrays

- There are two ways to create indexed arrays:
 1. The index can be assigned automatically as below :
 - \$cars = array("Volvo", "BMW", "Toyota");
 2. The index can be assigned manually:
 - \$cars[0] = "Volvo";
 - \$cars[1] = "BMW";
 - \$cars[2] = "Toyota";

Arrays- Indexed Arrays

- **To create and print array**

- **Example-**

- <?php

```
$cars = array("Volvo", "BMW", "Toyota");
echo "I like " . $cars[0] . ", " . $cars[1] . " and " . $cars[2] . ".";
?>
```

- **Get The Length of an Array - The count() Function**

- **Example**

- <?php

```
$cars = array("Volvo", "BMW", "Toyota");
echo count($cars);
?>
```

Arrays- Indexed Arrays

- **Loop Through an Indexed Array**

- **Example**

- <?php

```
$cars = array("Volvo", "BMW", "Toyota");
```

```
$arrlength = count($cars);
```

```
for($x = 0; $x < $arrlength; $x++) {
```

```
    echo $cars[$x];
```

```
    echo "<br>";
```

```
}
```

```
?>
```

Arrays- **Associative Arrays**

- Associative arrays are arrays that use named keys that you assign to them.
- There are two ways to create an associative array:
 1. `$age = array("Peter"=>"35", "Ben"=>"37", "Joe"=>"43");`
 2. `$age['Peter'] = "35";
$age['Ben'] = "37";
$age['Joe'] = "43";`

Arrays- Associative Arrays

- Example

- <?php

```
$age = array("Peter"=>"35", "Ben"=>"37", "Joe"=>"43");
echo "Peter is " . $age['Peter'] . " years old.";
?>
```

- Output:
- Peter is 35 years old.

- Loop Through an Associative Array

- Example

- <?php

```
$age = array("Peter"=>"35", "Ben"=>"37", "Joe"=>"43");
foreach($age as $x => $x_value) {
    echo "Key=". $x . "Value=". $x_value;
    echo "<br>";
}
?>
```

- Output:
- Key=Peter, Value=35
Key=Ben, Value=37
Key=Joe, Value=43

Arrays- Multidimensional Arrays

- PHP understands multidimensional arrays that are two, three, four, five, or more levels deep.
- **PHP - Two-dimensional Arrays**
- A two-dimensional array is an array of arrays
- First, take a look at the following table:

Name	Stock	Sold
Volvo	22	18
BMW	15	13

- **Example**
- \$cars = array
(
array("Volvo",22,18),
array("BMW",15,13),
);

Functions on Array

- **print_r()** –Prints all elements of an array in standard format
- **extract()**-Converts array into variables
- **compact()**-Converts group of variables into array
- **is_array()** –to check weather a particular elements is an array or not.
- **sort()** - sort arrays in ascending order
- **rsort()** - sort arrays in descending order,
- **asort()**-sorts associative arrays in **ascending order**, on **values**
- **ksort()**-sorts associative arrays in **ascending order**,on **keys**
- **arsort()**- sorts associative arrays in **descending order**,on **values**
- **krsort()**-sorts associative arrays in **descending order**,on **keys**

Functions on Array: **print_r()**

Example

```
<?php  
$a =  
array ('a' => 'apple', 'b' => 'banana')  
print_r ($a);  
?>
```

Out Put

```
Array  
(  
[a] => apple  
[b] => banana  
)
```

Functions on Array: **extract()**

Example

```
<?php  
$my_array = array("Rno" => "1",  
"Name" => "Anna",  
"Class" => "TE Comp");
```

```
extract($my_array);
```

```
echo $Rno;  
echo $Name;  
echo $Class;  
?>
```

Out Put

```
1  
Anna  
TE Comp
```

Functions on Array: **compact()**

Example

```
<?php  
$firstname = "Peter";  
$lastname = "Griffin";  
$age = "41";  
  
$result = compact("firstname",  
"lastname", "age");  
  
print_r($result);  
?>
```

Out Put

```
Array  
(  
[firstname] => Peter  
[lastname] => Griffin  
[age] => 41  
)
```

Functions on Array: **sort()**

Example

```
<?php  
$numbers = array(4, 6, 2, 22, 11);  
  
sort($numbers);      //sort in ascending order  
print_r ($numbers); //sort in ascending order  
  
rsort($numbers);  
print_r ($numbers);  
  
?>
```

Outline

Introduction to PHP,

Features,

sample code,

PHP script working,

PHP syntax,

conditions & Loops,

Functions,

String manipulation,

Arrays & Functions,

Form handling,

Cookies & Sessions,

using MySQL with PHP,

Form Handling- using Post Method

a.html

```
<html>
<body>

<form action="welcome.php"
method="post">
Name:
<input type="text" name="name">
<br>
<input type="submit">
</form>

</body>
</html>
```

Welcome.php

```
<html>
<body>

Welcome
<?php
echo $_POST["name"];
?>

</body>
</html>
```

Form Handling- using Get Method

a.html

```
<html>
<body>

<form action="welcome.php"
method="get">
Name:
<input type="text" name="name">
<br>
<input type="submit">
</form>

</body>
</html>
```

Welcome.php

```
<html>
<body>

Welcome
<?php
echo $_GET["name"];
?>

</body>
</html>
```

Form Handling-

Difference between get and post method

- **`$_GET`** is an array of variables passed to the current **script via the URL parameters**.
 - **`$_POST`** is an array of variables passed to the current script **via the HTTP POST method**.
-
- **When to use GET?**
 - Information sent from a form with the GET method is **visible to everyone**. GET also has limits on the amount of information to send. The limitation is about 2000 characters.
-
- **When to use POST?**
 - Information sent from a form with the POST method is **invisible to others** and **has no limits** on the amount of information to send.
 - However, because the variables are not displayed in the URL, it is not possible to bookmark the page.

Outline

Introduction to PHP,

Features,

sample code,

PHP script working,

PHP syntax,

conditions & Loops,

Functions,

String manipulation,

Arrays & Functions,

Form handling,

Cookies & Sessions,

using MySQL with PHP,

Cookie

- **What is a Cookie?**
 - A cookie is often used to identify a user. A cookie is a small file that the server embeds on the user's computer. Each time the same computer requests a page with a browser, it will send the cookie too. With PHP, you can both create and retrieve cookie values.
 - **Create Cookies With PHP-** is created with the `setcookie()` function.
-
- **Syntax**
 - `setcookie(name, value, expire, path, domain, secure, httponly);`
 - Only the *name* parameter is required. All other parameters are optional.

Cookie-Create/Retrieve a Cookie

```
<?php  
setcookie("name", "Amit", time() + (86400 * 30), "/"); // 86400 = 1 day  
?>  
  
<html>  
<body>  
<?php  
if(isset($_COOKIE["name"]))  
{  
    $nm=$_COOKIE["name"];  
    echo "Hello",$nm;  
}  
else { echo "Coocke is not set"; }  
?>  
</body>  
</html>
```

Cookie-**Modifying** a Cookie

- To modify a cookie, just set (again) the cookie using the `setcookie()` function:

Cookie- Deleting Cookies

```
<?php  
// set the expiration date to one hour ago  
setcookie("user", "", time() - 3600);  
?  
<html>  
<body>  
  
<?php  
echo "Cookie 'user' is deleted.";  
?  
  
</body>  
</html>
```

Sessions

- A session is a way to store information (in variables) to be used across multiple pages.
- Unlike a cookie, the information is not stored on the users computer.
- **What is a PHP Session?**
- When you work with an application, you open it, do some changes, and then you close it. This is much like a Session. The computer knows who you are. It knows when you start the application and when you end. But on the internet there is one problem: the web server does not know who you are or what you do, because the HTTP address doesn't maintain state.
- Session variables solve this problem by storing user information to be used across multiple pages (e.g. username, favorite color, etc). By default, session variables last until the user closes the browser.
- So; Session variables hold information about one single user, and are available to all pages in one application.

Sessions- Start a Session

- A session is started with the session_start() function.
- Session variables are set with the PHP global variable: \$_SESSION.
- **Example - demo_session1.php**

```
<?php
    session_start(); // Start the session ?>
<html>
<body>
<?php
    $_SESSION["favcolor"] = "green"; // Set session variable
echo "Session variables are set."; ?>
</body>
</html>
```

Sessions: Get Session Variable Values

- Next, we create another page called "demo_session2.php". From this page, we will access the session information we set on the first page ("demo_session1.php").
- session variable values are stored in the global `$_SESSION` variable
- **Example- demo_session2.php**

```
<?php
    session_start(); ?>
<html>
<body>
<?php
// Echo session variables that were set on previous page
echo "Favorite color is " . $_SESSION["favcolor"];
?>
</body>
</html>
```

Sessions- Modify a Session

- To change a session variable, just overwrite it:

```
<?php
session_start(); ?>
<html>
<body>
<?php
// to change a session variable, just overwrite it
$_SESSION["favcolor"] = "yellow";
print_r($_SESSION);
?>
</body>
</html>
```

Sessions: **Destroy a Session**

- To remove all global session variables and destroy the session, use `session_unset()` and `session_destroy()`:
- **Example-**

```
<?php  
    session_start(); ?>
```

```
<html>  
    <body>
```

```
<?php  
    session_unset(); // remove all session variables  
    session_destroy(); // destroy the session  
?>
```

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

Outline

Introduction to PHP,

Features,

sample code,

PHP script working,

PHP syntax,

conditions & Loops,

Functions,

String manipulation,

Arrays & Functions,

Form handling,

Cookies & Sessions,

Using MySQL with PHP,

Open a Connection to MySQL

```
<?php  
// Create connection  
$conn = new mysqli("localhost", "root", "");  
//MySQLi extension (the "i" stands for improved)  
  
// Check connection  
if(!$conn){  
    die('Could not connect: '.mysqli_connect_error());  
}  
echo 'Connected successfully<br/>';  
?>
```

Select Data From a MySQL Database

```
<?php  
$conn = mysqli_connect('localhost', 'root', 'root', 'db1');  
if(!$conn){  
    die(mysqli_connect_error());  
}  
echo 'Connected successfully<br>';  
  
$sql = 'SELECT * FROM STUD';  
$rs=mysqli_query($conn, $sql);  
$nrows= mysqli_num_rows($rs);
```

Select Data From a MySQL Database

```
if($nrows > 0){  
    while($row = mysqli_fetch_assoc($rs)){  
        echo "ID :{$row['id']} <br>";  
        echo "FNAME : {$row['firstname']} <br>";  
        echo "LNAME : {$row['lastname']} <br>";  
        echo "-----<br>";  
    }  
}  
  
else { echo " No result"; }  
mysqli_close($conn);  
?>
```

Outline

PHP

WAP & WML,

AJAX

WAP & WML

WAP- Introduction

WAP stands for Wireless Application Protocol

WAP is an application communication protocol

WAP is used to access services and information

WAP is for handheld devices such as mobile phones

WAP is a protocol designed for micro browsers

WAP enables the creating of web applications for mobile devices.

WAP uses the mark-up language WML

WAP -Introduction

The basic aim of WAP is to provide a web-like experience on small portable devices - like mobile phones and PDAs



WAP -Introduction

- **Purpose of WAP**

To enable easy, fast delivery of relevant information and services to mobile users.

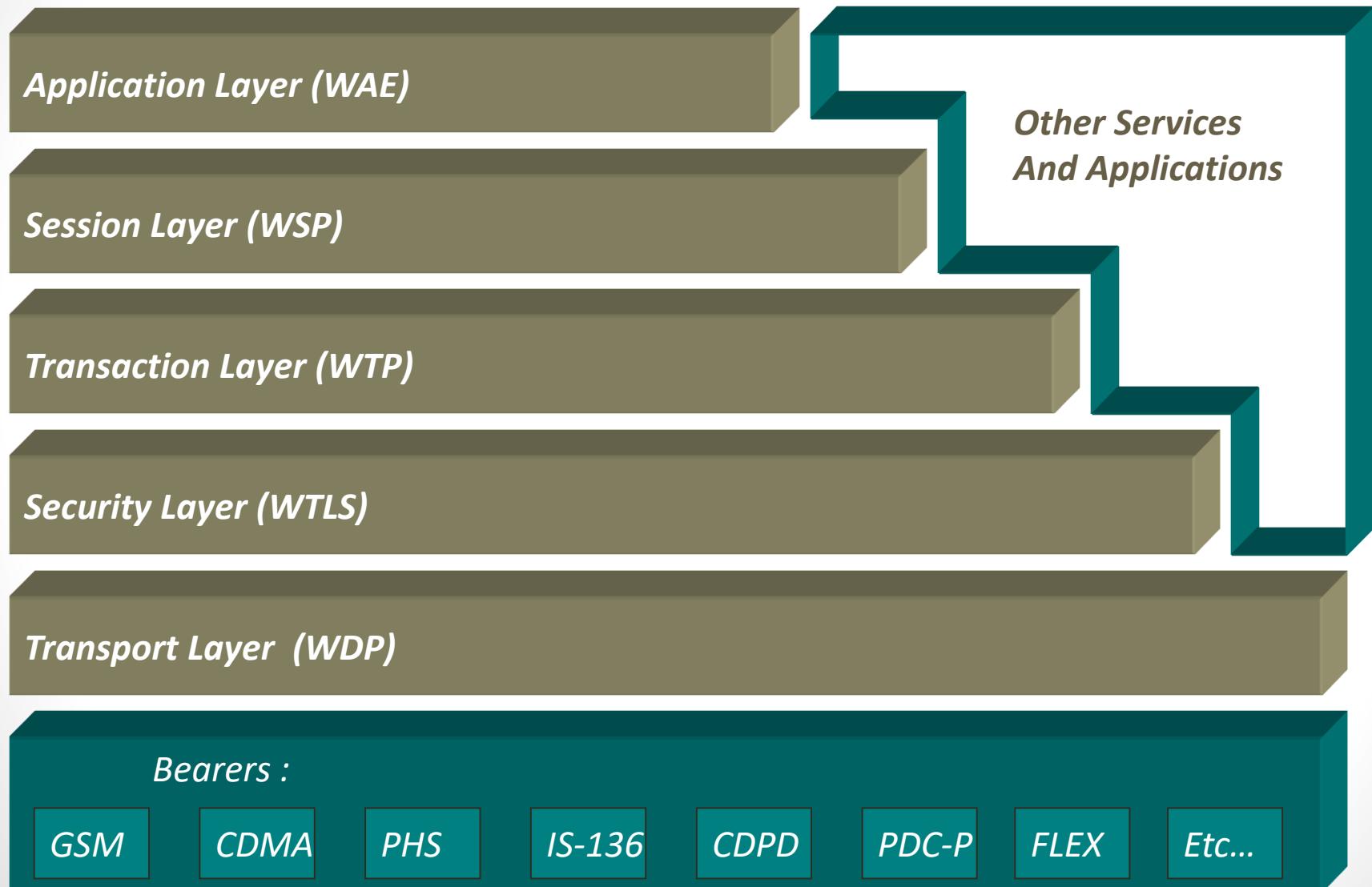
- **Type of devices that use WAP**

Handheld digital wireless devices such as mobile phones, pagers, two-way radios, smart phones and communicators -- from low-end to high-end.

- **Type of OS that use WAP**

It can be built on any operating system including Palm OS, EPOC 32, Windows CE, FLEXOS, OS/9, Java O

Components of WAP Architecture



Wireless Application Environment (WAE) - components

Addressing model –uses URL & URI

WML- similar feature like HTML

WML script – For user I/P validation

WTA(Wireless Telephony Application)

Wireless Markup Language

- **WML** is the markup language defined in the WAP specification. WAP sites are written in **WML**, while web sites are written in HTML. **WML** is very similar to HTML. Both of them use tags and are written in plain text format.
- *WML* (Wireless Markup Language), formerly called **HDML (Handheld Devices Markup Languages)**, is a language that allows the text portions of Web pages to be presented on cellular telephones and personal digital assistants (PDAs) via wireless access.

Wireless Markup Language

WML follows a deck and card.

- A WML document is made up of multiple cards.
- Cards can be grouped together into a deck.

A WML deck is similar to an HTML page.

- A user navigates with the WML browser through a series of WML cards.

WML Elements

`<p> </p>`

text

` `

hyperlink (anchor)

`<do> </do>`

action

`<go href=.../>`

goto wml page

`<timer>`

trigger event (units = tenths of a second)

`<input/>`

input user text

`<prev/>`

return to previous page

`$(...)`

value of variable

``

display image

`<postfield name=... value=.../>`

set variable

`<select> <option> <option> </select>`

select box

WML Structure

```
< ? xml version="1.0" ? >
<!DOCTYPE wml ...>
<wml>
    <card>
        <p>
            Text....
        </p>
        <p>
            Text.....
        </p>
    </card>
    <card>
        ...
    </card>
</wml>
```

WML Example

```
<?xml version="1.0"?>
<wml>
  <card id="one" title="First Card">
    <p>
      This is the first card in the deck
    </p>
  </card>
  <card id="two" title="Second Card">
    <p>
      Ths is the second card in the deck
    </p>
  </card>
</wml>
```

WML Scripts

- WMLScript (Wireless Markup Language Script) is the client-side scripting language of WML (Wireless Markup Language).
- A scripting language is similar to a programming language, but is of lighter weight.
- With WMLScript, the wireless device can do some of the processing and computation.
- This reduces the number of requests and responses to/from the server.

WAP Applications

- Banking:
- Finance:
- Shopping:
- Ticketing:
- Entertainment:
- Weather:
- E- Messaging:

Outline

PHP

WAP & WML,

AJAX

AJAX

AJAX

- **What is AJAX?**

- **AJAX = Asynchronous JavaScript And XML.**
- AJAX is not a programming language.
- AJAX just uses a combination of:
- A browser built-in XMLHttpRequest object (to request data from a web server)
- JavaScript and HTML DOM (to display or use the data)

AJAX - Technologies

- AJAX cannot work independently. It is used in combination with other technologies to create interactive webpages.
- **JavaScript**
 - Loosely typed scripting language.
 - JavaScript function is called when an event occurs in a page.
 - Glue for the whole AJAX operation.
- **DOM**
 - API for accessing and manipulating structured documents.
 - Represents the structure of XML and HTML documents.
- **CSS**
 - Allows for a clear separation of the presentation style from the content and may be changed programmatically by JavaScript
- **XMLHttpRequest**
 - JavaScript object that performs asynchronous interaction with the server.

AJAX – Real Time Examples

- Here is a list of some famous web applications that make use of AJAX.

1. Google Maps

- A user can drag an entire map by using the mouse, rather than clicking on a button.

2. Google Suggest

- As you type, Google offers suggestions. Use the arrow keys to navigate the results.

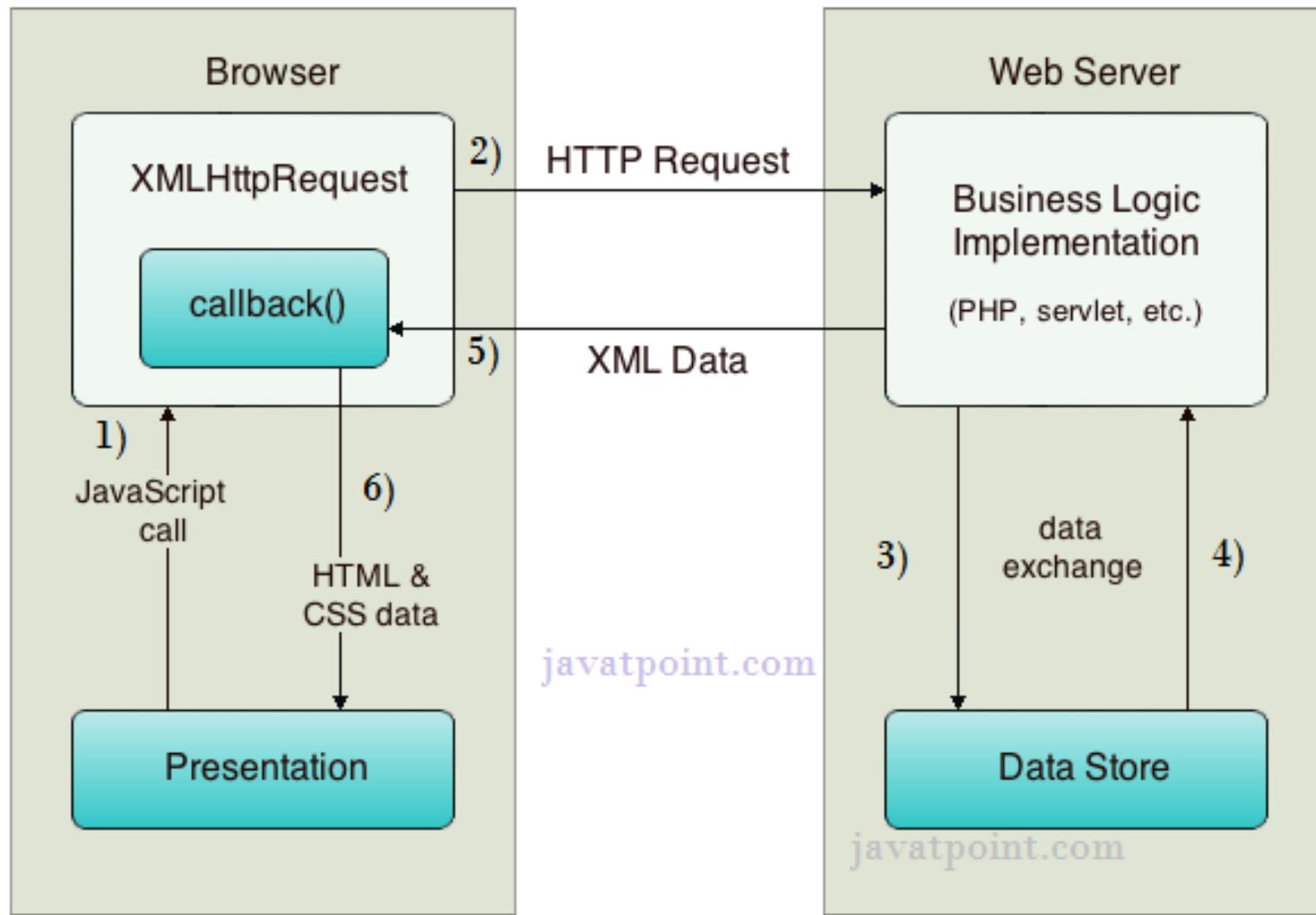
3. Gmail

- Gmail is a webmail built on the idea that emails can be more intuitive, efficient, and useful.

4. Yahoo Maps (new)

- Now it's even easier and more fun to get where you're going!

How AJAX Works



AJAX Processing Steps

- **Steps of AJAX Operation**
 - A client event occurs.
 - An XMLHttpRequest object is created.
 - The XMLHttpRequest object is configured.
 - The XMLHttpRequest object makes an asynchronous request to the Webserver.
 - The Webserver returns the result containing XML document.
 - The XMLHttpRequest object calls the callback() function and processes the result.
 - The HTML DOM is updated.

AJAX Example – table.html

```
<html>
<head>
<script>
var request;

function sendInfo() {
var v=document.f1.t1.value;
var url="index.jsp?val="+v;

if(window.XMLHttpRequest){
    request=new XMLHttpRequest();
}

request.onreadystatechange=getInfo;
request.open("GET",url,true);
request.send();

}

request.onreadystatechange=getInfo;
request.open("GET",url,true);
request.send();

}

function getInfo(){
if (request.readyState==4) {
var val=request.responseText;
document.getElementById('amit').innerHTML
L=val;
}
}
</script>
</head>

<body>
<h1>This is an example of ajax</h1>
<form name="f1">
<input type="text" name="t1">
<input type="button" value="ShowTable"
onClick="sendInfo()">
</form>
<span id="amit"> </span>
</body>
</html>
```

AJAX Example- index.jsp

```
<%  
int n=Integer.parseInt(request.getParameter("val"));  
for(int i=1;i<=10;i++)  
out.print(i*n+"<br>");  
%>
```

AXAX Example output

The diagram illustrates the output of an AXAJX example. It consists of two vertically stacked browser windows. Both windows have the URL <http://localhost:8081/AJAXExample/table1.html> displayed in the address bar.

The top window displays the text "This is an example of ajax" above a form. The form contains a text input field and a button labeled "ShowTable". A large green arrow points downwards from the bottom of this window to the bottom of the second window.

The bottom window also displays the text "This is an example of ajax" above a form. The form contains a text input field with the value "5" and a button labeled "ShowTable". Below the form, a list of numbers is displayed, starting from 5 and increasing by increments of 5 up to 50 (5, 10, 15, 20, 25, 30, 35, 40, 45, 50).

References

- https://www.w3schools.com/php/php_intro.asp
- https://www.w3schools.com/php/php_looping.asp
- https://www.w3schools.com/php/php_if_else.asp
- https://www.w3schools.com/php/php_string.asp
- https://www.w3schools.com/php/php_arrays.asp
- https://www.w3schools.com/php/php_arrays_multi.asp
- https://www.w3schools.com/php/php_forms.asp
- https://www.w3schools.com/php/func_array_extract.asp
- https://www.w3schools.com/php/func_array_compact.asp
- https://www.w3schools.com/php/func_array_in_array.asp
- https://www.w3schools.com/php/php_cookies.asp
- https://www.w3schools.com/php/php_sessions.asp
- https://www.tutorialspoint.com/wap/wap_wml_script.htm
- https://www.w3schools.com/xml/ajax_intro.asp
- https://www.tutorialspoint.com/ajax/ajax_examples.htm