AJAX & JSON

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Introduction

- **JSON (JavaScript Object Notation), is a simple and easy to read and write data exchange format.**
  - It is easy for humans to read and write.
  - It is easy for machines to parse and generate.
  - It is based on a subset of the JavaScript, Standard ECMA-262
  - JSON is a text format that is completely language independent; can be used with most of the modern programming languages.
  - The filename extension is .json
  - JSON Internet Media type is application/json
  - It's popular and implemented in countless projects worldwide, for those don't like XML, JSON is a very good alternative solution.

Values supported by JSON

- **Strings : double-quoted Unicode, with backslash escaping**
- **Numbers: double-precision floating-point format in JavaScript**
- **Booleans : true or false**
- **Objects: an unordered, comma-separated collection of key:value pairs**
- **Arrays : ordered, comma-separated values enclosed in square brackets**
- **Null : A value that isn't anything**

```
var obj = {
    "name":"Amit",
    "age": 37.5,
    "married": true,
    "address":{ "city":"Pune" , "state":"Mah" },
    "hobbies":["swimming","reading","music"]
}
```

```
<script language="javascript">
var JSONObject = {  "name" : "Amit",
        "address"  : "B-123 Bangalow",
        "age"  : 23,
        "phone"   : "011-4565763",
        "MobileNo"  : 0981100092
  };
var str =
"<h2><font color='blue'>Name </font>::“        +JSONObject.name+"</h2>“ +
 "<h2><font color='blue'>Address </font>::“   + JSONObject.address+"</h2>“ +
"<h2><font color='blue'>Age </font>::“            +JSONObject.age+"</h2>“ +
"<h2><font color='blue'>Phone No </font>::“  +JSONObject.phone+"</h2>“ +
"<h2><font color='blue'>Mobile No </font>::“  + JSONObject.MobileNo+"</h2>“;

document.write(str);
</script>
```

Name ::Amit

Address ::B-123 Bungalow

Age ::23

Phone No ::011-4565763

Mobile No ::981100092

Demo

```
<script >
var students = {
    "Students": [
            { "Name": "Amit Goenka",
              "Major": "Physics"
            },
            { "Name": "Smita Pallod",
             "Major": "Chemistry"
            },
            { "Name": "Rajeev Sen",
              "Major": "Mathematics"
            }] }
var i=0
document.writeln("students.Students.length : " + students.Students.length);
for(i=1;i<students.Students.length+1;i++)  {
    document.writeln("<b>Name : </b>" + students.Students[i].Name + "   ");
    document.writeln("<b>Majoring in : </b>" + students.Students[i].Major);
    document.writeln("</br>");
}
</script>
```

students.Students.length : 3
Name : Amit Goenka **Majoring in :** Physics
Name : Smita Pallod **Majoring in :** Chemistry
Name : Rajeev Sen **Majoring in :** Mathematics

What is Ajax ?

- **“Asynchronous JavaScript And XML”**
  - AJAX is not a programming language, but a technique for making the user interfaces of web applications more responsive and interactive
  - It provide a simple and standard means for a web page to communicate with the server without a complete page refresh.
- **Why Ajax?**
  - Intuitive and natural user interaction
    - No clicking required. Call can be triggered on any event
    - Mouse movement is a sufficient event trigger
  - "Partial screen update" replaces the "click, wait, and refresh" user interaction model
    - Only user interface elements that contain new information are updated (fast response)
  - The rest of the user interface remains displayed as it is without interruption (no loss of operational context)

XMLHttpRequest

- **JavaScript object - XMLHttpRequest object for asynchronously exchanging the XML data between the client and the server**
- **XMLHttpRequest Methods**
  - open(“method”, “URL”, syn/asyn) : Assigns destination URL, method, mode
  - send(content) : Sends request including string or DOM object data
  - abort() : Terminates current request
  - getAllResponseHeaders() : Returns headers (labels + values) as a string
  - getResponseHeader(“header”) : Returns value of a given header
  - setRequestHeader(“label”,”value”) : Sets Request Headers before sending
- **XMLHttpRequest Properties**
  - Onreadystatechange : Event handler that fires at each state change
  - readyState values – current status of request
  - Status : HTTP Status returned from server: 200 = OK
  - responseText : get the response data as a string
  - responseXML : get the response data as XML data

Creating an AJAX application

- **Step 1: Get an instance of XHR object**

```
if (window.XMLHttpRequest) { // Mozilla, Safari, IE7+ ...
    xhr = new XMLHttpRequest();
} else if (window.ActiveXObject) { // IE 6 and older
    xhr = new ActiveXObject("Microsoft.XMLHTTP");
}
```

- **Step 2: Make the request**

```
xhr.open('GET', 'http://www.example.org/some.file', true);
xhr.send(null);
```

```
xhr.open("POST", "AddNos.jsp");
xhr.setRequestHeader("Content-type", "application/x-www-form-urlencoded");
xhr.send("tno1=100&tno2=200");
```

- **Step 3 : Attach callback function to xhr object**

```
httpRequest.onreadystatechange = function(){
        // process the server response
};
```

Ajax Demo

```
<script >
var xhr;
function getData(){
   getHTTPRequestObject();
   if(xhr){
      xhr.open("GET", "Sample.txt", true);
      xhr.send();
      xhr.onreadystatechange = function(){
         if(xhr.readyState == 4 &&  xhr.status == 200){
               document.getElementById("lblresult").innerHTML=xhr.responseText;
          }
       }  //end of callback function
}}
function getHTTPRequestObject() {
        if (window.XMLHttpRequest) { // Mozilla, Safari, IE7+ ...
              xhr = new XMLHttpRequest();
        } else if (window.ActiveXObject) { // IE 6 and older
             xhr = new ActiveXObject("Microsoft.XMLHTTP");
  }}
</script> <body>
    <input type="button" onclick="getData()"  value="Getresult"/>
    <div id="lblresult"></div>
</body>
```

```
//sample.txt
hi how r u this is the
response data from file
```

Getresult

hi how r u this is the response data from file

AJAX Demo with XML

```
<script language="javascript" type="text/javascript">
var xmlhttp;
function getData(){
  getHTTPRequestObject();
  if(xmlhttp){
     xmlhttp.open("GET", "Employee.xml", true);
    xmlhttp.send();
    xmlhttp.onreadystatechange = function(){
        if(xmlhttp.readyState == 4 && ixmlhttp.status == 200){
            xmlDoc=xmlhttp.responseXML;
            x=xmlDoc.getElementsByTagName("EmpName");
            document.write("<h3>--- Emp names ----</h3><br>");
            for (i=0;i<x.length;i++){
                document.write(x[i].childNodes[0].nodeValue  + “<br>”);
             }
    } }
</script>
<body>
<input type="button" onclick=" getData()" value="Getresult"/>
<div id="lblresult"></div>
</body>
</html>
```

```
<Employees>
  <Employee>
    <empid>1001</empid>
    <EmpName>Vipul</EmpName>
    <Desig>Software Analyst</Desig>
  </Employee>
 <Employee>
  <Empid>1002</Empid>
    <EmpName>Vivek</EmpName>
    <Desig>Software Analyst</Desig>
  </Employee>
</Employees>
```

AJAX Demo with JSON

```
<script >
 var xmlhttp;
 function getData(){
   getHTTPRequestObject();
   if(xmlhttp){
      xmlhttp.open("GET", "EmpJSONData.txt", true);
     xmlhttp.onreadystatechange = function(){
       if(xmlhttp.readyState == 4 && xmlhttp.status == 200){
            var obj = JSON.parse(xmlhttp.responseText);
            var displaytext = "";
            displaytext += "Emp name : " + obj.name + "<br>" +
                        "Designation : " + obj.desig + "<br>" +
                        "Age : " + obj.age + "<br>" +
                        "Salary : " + obj.sal;
           document.getElementById("lblres").innerHTML = displaytext;
        }
} }
</script><body>
<h3 id="lblres">Result</h3>
<input type="button" id="btngetjsondata" onclick="getData()"  value="GetData">
</body>
```

Emp name : Kapil Verma
Designation : ASE
Age : 23
Salary : 22000

GetJsonData

```
{ "name":"Kapil Verma",
  "desig":"ASE",
  "age":23,
  "sal":22000
}
```

PHP (PHP: HYPERTEXT PREPROCESSOR)

PHP intro

- **PHP is a server scripting language, and a powerful tool for making dynamic and interactive Web pages.**
  - PHP is a widely-used, open source scripting language
  - PHP scripts are executed on the server and the result is returned to the browser as plain HTML
  - PHP is free to download and use.
  - PHP files can contain text, HTML, CSS, JavaScript, and PHP code ; have extension ".php“
- **Installing PHP**

- We need:
  - PHP interpreter/parser
    - In order to process PHP script instructions a parser must be installed to generate HTML output that can be sent to the Web Browser.
  - Apache Web Server (Apache HPPTD)
  - MySQL for storing data

- You can download each of these and separately install

- Better option? XAMPP WAMP
  - An all-in-one solution (www.apachefriends.org/en/xampp.html),
  - It rolls Apache, MySQL, PHP, and a few other useful tools together into one easy installer.
  - XAMPP is free and available for Windows, Mac, and Linux.

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
?>
```

```
<?php
echo "<h1>Hello from PHP</h1>";
?>
```

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

A PHP file normally contains HTML tags, and some PHP scripting code.

- **Comments in PHP :**
  - PHP supports several ways

```
// a single-line comment
# also a single-line comment
/*
a multiple-lines comment block
spanning multiple lines
*/
```

PHP Variables

- **A variable starts with the $ sign, followed by the name of the variable**
  - PHP has no command for declaring a variable. It is created the moment you first assign a value to it. Eg:

```
$txt = "Hello world!";
$x = 5;
$y = 10.5;
```

```
echo "I love $txt!";
echo "I love " . $txt . "!";
```

```
<?php
  $x = 5;
  $y = 4;
  echo $x + $y;
?>
```

- **+ is pure math operator:**

```
$x = "15" + 27;
echo($x); //gives 42!!
```

- **Rules for PHP variables:**
  - Starts with the $ sign, followed by the name of the variable
  - Must start with a letter or the underscore character only
  - Can only contain alpha-numeric characters & underscores (A-z, 0-9, _)
  - Are case-sensitive ($age and $AGE are different)

Example, $popeye, $one and $INCOME are all valid PHP variable names, while $123 and $48hrs are invalid.

Variables

Scope

- **Variables can be declared anywhere in the script.**
- **PHP has three different variable scopes:**
  - Local : can only be accessed within that function
  - Global : can only be accessed outside a function
  - Static : retains value of local variable even after function ends

```
<?php
   $x = 5; // global scope
  function myTest() {
        echo "<p>Variable x inside function is: $x</p>"; // x inside function gives error
        $y = 10; // local scope
        echo "<p>Variable y inside function is: $y</p>";
}
myTest();
echo "<p>Variable x outside function is: $x</p>"; // y outside function gives error
?>
```

Variables Scope

- **The global Keyword**

```php
<?php
$x = 5;  $y = 10;

function myTest() {
    global $x, $y;
    $y = $x + $y;
}

myTest();
echo $y; // outputs 15
?>
```

```php
<?php
$x = 5; $y = 10;

function myTest() {
    $GLOBALS['y'] = $GLOBALS['x'] + $GLOBALS['y'];
}

myTest();
echo $y; // outputs 15
?>
```

- **The static Keyword**
  - If we want a local variable NOT to be deleted when a function is completed/executed

```php
<?php
function myTest() {
    static $x = 0;
    echo $x;  $x++;
}
myTest();
myTest();
myTest();    ?>
```

Note: The variable is still local to the function.

Outputs : 0 1 2

Output data to the screen

- **There are two basic ways to get output: echo and print**

```
echo "<h2>PHP is Fun!</h2>";
echo “Hello <b>$name</b>!!<br>";
echo "This ", "string ", "was ", "made ", "with multiple parameters.";
```

```
print "<h2>PHP is Fun!</h2>";
print "Hello world!<br>";
print "I'm about to learn PHP!";
```

- **print_r() and var_dump() : dumps out PHP data - it is used mostly for debugging**

```
$stuff = array("name" => "Chuck", "course" => "SI664");
    print_r($stuff);
```

Data Types

- **PHP supports the following data types:**
  - String Eg - $x = "Hello world!";
  - Integer Eg - $x = 5985;
  - Float (floating point numbers - also called double) Eg $x = 10.365;
  - Boolean Eg - $x = true;
  - Array Eg - $cars = array("Volvo","BMW","Toyota");
  - Object
  - NULL
  - Resource : are special variables that hold references to resources external to PHP (such as database connections)

```
$handle = fopen("note.txt", "r");
var_dump($handle);
```

- **gettype(): Get the type of a variable**

Example:

```
$s1 = "";
$v1 = null;
$bool = false;
$no1 = 1;
echo ('$s1 : ' . gettype($s1) . "<br>");
echo ('$v1 : ' . gettype($v1) . "<br>");
echo ('$bool : ' . gettype($bool) . "<br>");
echo ('$no1 : ' . gettype($no1) . "<br>");
```

PHP

Constants

- **A constant is an identifier (name) for a simple value. The value cannot be changed during the script.**
  - A valid constant name starts with a letter or underscore (*no $ sign before the constant name).*
- **To create a constant, use the define() function.**
  - Syntax : define(*name*, *value*, *case-insensitive*) //case: Default is false

```
<?php
define("GREETING", "Welcome to PHP!");
echo GREETING;
?>
```

```
// Valid constant names
define("ONE",      "first thing");
define("TWO2",     "second thing");
define("THREE_3", "third thing")
```

- **Constants are automatically global & can be used across the entire script**
-

```
<?php
   define("GREETING", "Welcome to PHP");
   function myTest() {
         echo  GREETING;
}
myTest();
?>
```

PHP Operators

- **Arithmetic Operators**

Operator	Example	Result
+	4 + 2	6
-	4 - 2	2
*	4 * 2	8
/	4 / 2	2
%	4 % 2	0
++	x = 4; x++;	x = 5
--	x = 4; x--;	x = 3

- **Assignment Operators**

Operator	Example	Meaning
+=	y += x	y = y + x
-=	y -= x	y = y - x
*=	y *= x	y = y * x
/=	y /= x	y = y / x
%=	y %= x	y = y % x

- **Logical Operators**

Operator	Meaning
||	or
&&	and
and	and
or	or
xor	xor
!	not

- **String Operators**

Operator	Example	Result
.	$txt1 . $txt2	Concatenation of $txt1 & $txt2
.=	$txt1 .= $txt2	Appends $txt2 to $txt1

- **Comparison Operators**

Operator	Meaning
==	is equal to
!=	is not equal to
>	is greater than
>=	is greater than or equal to
<	is less than
<=	is less than or equal to

Conditional Statements : syntax

```
if (condition) {
    // if condition is true;
} else {
    //if condition is false;
}
```

```
if (condition) {
    code to be executed if condition is true;
} elseif (condition) {
    code to be executed if condition is true;
} else {
    code to be executed if condition is false;
}
```

```
switch (n) {
    case label1:
        code to be executed if n=label1;
        break;
    case label2:
        code to be executed if n=label2;
        break;
    case label3:
        code to be executed if n=label3;
        break;
    ...
    default:
        code to be executed if n is different from all
labels;
}
```

Conditional Statements : example

```
$sample = 10;
IF ($sample > 5) {
  print "Number is greater than 5";
}
ELSE {
  print "Number is less than 5";
}
```

```
<?php
$t = date("H");

if ($t < "10") {
    echo "Have a good morning!";
} elseif ($t < "20") {
    echo "Have a good day!";
} else {
    echo "Have a good night!";
}
?>
```

```
<?php
$favcolor = "red";

switch ($favcolor) {
    case "red":
        echo "Your favorite color is red!";
        break;
    case "blue":
        echo "Your favorite color is blue!";
        break;
    case "green":
        echo "Your favorite color is green!";
        break;
    default:
        echo "Your favorite color is neither
red, blue, or green!";
}
?>
```

Loops : syntax

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

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

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

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

```
foreach (($array_name as $key => $value) {
    code to be executed;
}
```

Note : foreach() works only on arrays, and is used to loop through each key/value pair in an array

User Defined Functions

- Syntax:

```
function "function_name" (arg1, arg2...) {
  [code to execute]
  return [final_result];
}
```

- Example:

```
function writeMsg() {
    echo "Hello world!";
}
writeMsg(); // call the function
```

```
function writeMsg($fname) {
    echo "Hello $fname!";
}
writeMsg("Shrilata");
writeMsg("Soha");
```

- To let a function return a value, use the return statement

```
function sum($x, $y) {
    $z = $x + $y;
    return $z;
}
echo "5 + 10 = " . sum(5, 10) ;
```

Functions

- **Passing Parameters by Reference**

```
function square(&$value)   {
    $value = $value * $value;
}
$a = 3;
square($a);
echo $a;
```

- **Default Parameters**

```
function getPreferences($whichPreference = 'all')  {
   //code that uses the parameter
}
```

- **Variable Parameters: PHP provides three functions you can use in the function to retrieve the parameters passed to it.**
  - func_get_args() returns an array of all parameters provided to the function;
  - func_num_args() returns the number of parameters provided to the function;
  - func_get_arg() returns a specific argument from the parameters.

```
$array = func_get_args();
$count = func_num_args();
$value = func_get_arg(argument_number);
```

PHP include

- **INCLUDE appends the code from an external file into the current file.**
  - Including files is very useful when you want to include the same PHP, HTML, or text on multiple pages of a website
  - Syntax : INCLUDE ("external_file_name");

```
//index.php
<?php
  print "This is the original content<br>";
  include ("external.php");
?>
```

```
//external.php
<?php
  print "This is the external content";
?>
```

```
-------Output------
This is the original content
This is the external content
```

```
<?php include "header.html"; ?>
content
<?php include "footer.html"; ?>
```

Indexed Arrays

- array() function is used to create an array

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

or

```
$cars[0] = "Volvo";
$cars[1] = "BMW";
$cars[2] = "Toyota";
```

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

Output : I like Volvo, BMW and Toyota.
```

```
$stuff = array();
$stuff[2] = "Hello";
$stuff[9] = "World";
echo $stuff[9];   //o/p : world
```

```
$arr = array(1, 2, 3, 4);
foreach ($arr as  $value) {
    $value = $value * 2;
}
```

- **count() :** returns length of array
  - Can use sizeof() too

```
$cars = array("Volvo", "BMW", "Toyota");
for($x = 0; $x < count($cars); $x++) {
    echo $cars[$x] . “<br>”;
}
```

Associative Arrays

- Are arrays that use named keys that you assign to them

```
$age = array("Peter"=>"35", "Ben"=>"37", "Joe"=>"43");
```

or

```
$age['Peter'] = "35";
$age['Ben'] = "37";
$age['Joe'] = "43";
echo "Peter is " . $age['Peter'] . " years old.";
```

```
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
```

Multidimensional array

- **A multidimensional array is an array containing one or more arrays**
  - Can be two, three, four, five, or more levels deep.

Name	Stock	Sold
Volvo	22	18
BMW	15	13
Saab	5	2
Land Rover	17	15

data

```
$cars = array(
  array("Volvo",22,18),
  array("BMW",15,13),
  array("Saab",5,2),
  array("Land Rover",17,15)
  );
```

Table for this data

```
Volvo: In stock: 22, sold: 18.
BMW: In stock: 15, sold: 13.
Saab: In stock: 5, sold: 2.
Land Rover: In stock: 17, sold: 15.
```

output

```
echo $cars[0][0].": In stock: ".$cars[0][1].", sold: ".$cars[0][2].".<br>";
echo $cars[1][0].": In stock: ".$cars[1][1].", sold: ".$cars[1][2].".<br>";
echo $cars[2][0].": In stock: ".$cars[2][1].", sold: ".$cars[2][2].".<br>";
echo $cars[3][0].": In stock: ".$cars[3][1].", sold: ".$cars[3][2].".<br>";
```

```
for ($row = 0; $row < 4; $row++) {
  echo "<p><b>Row number $row</b></p>“ . "<ul>";
  for ($col = 0; $col < 3; $col++)
     echo "<li>".$cars[$row][$col]."</li>";
  echo "</ul>"; }
```

Nested for loop

Sorting Arrays

- **array sort functions and other functions:**
  - sort() - sort arrays in ascending order
  - rsort() - sort arrays in descending order
  - asort() - sort associative arrays in ascending order, according to the value
  - ksort() - sort associative arrays in ascending order, according to the key
  - arsort() - sort associative arrays in descending order, according to the value
  - krsort() - sort associative arrays in descending order, according to the key

```
<?php
$cars = array("Volvo", "BMW", "Toyota");
sort($cars);
?>
```

```
<?php
$numbers = array(4, 6, 2, 22, 11);
rsort($numbers);
?>
```

```
<?php
$numbers = array(4, 6, 2, 22);
sort($numbers);
?>
```

```
<?php
$age = array("Peter"=>"35", "Ben"=>"37",
"Joe"=>"43");
asort($age);
?>
```

  - array_keys() : Return an array containing the keys
  - array_pop() : deletes the last element of an array
  - array_push() : inserts one or more elements to the end of an array
  - array_values() : returns an array containing all the values of an array
  - array_slice() : returns selected parts of an array. array_slice(*array,start,length)*

String Functions

- strlen() : returns the length of a string
- str_word_count() : counts the number of words in a string
- strrev() : reverses a string
- strchr() : searches for the first occurrence of a string inside another string.
- strpos() : searches for a specific text within a string. strpos(*string,find)*
- str_replace() : replaces some characters with others in a string
- strtolower() and strtoupper()
- explode() : breaks a string into an array. explode(*separator,string)*
- parse_str() : parses a query string into variables
- strcmp() : compares two strings. strcmp(*string1,string2*)

```
$str = "Hello world. It's a beautiful day.";
echo strlen("Hello")."<br>";            //returns 5
echo strpos($str,"world")."<br>";      //returns 6
echo strrev("Hello World!")."<br>";  //returns !dlroW olleH
echo strtoupper($str)."<br>";          //HELLO WORLD. IT'S A BEAUTIFUL DAY.
print_r(explode(" ",$str));            //Break a string into an array
//Array ( [0] => Hello [1] => world. [2] => It's [3] => a [4] => beautiful [5] => day. )
echo "<br>";
echo str_replace("world","everybody",$str)."<br>";
//Hello everybody. It's a beautiful day.
parse_str("name=Peter&age=43");
echo $name."<br>";                      //Peter
echo $age;                             //43
```

Date Function

- There is no way to directly get date/time in PHP
  - The PHP date( ) function formats a timestamp to a more readable date and time.
- date(format [, timestamp])
  - format : Required. Specifies the format of the timestamp
  - timestamp : Optional. Specifies a timestamp. Default is current date & time
- Some of the formatting characters commonly used:
  - d - The day of the month (from 01 to 31)
  - D - A textual representation of a day (three letters) (Fri, Sun etc)
  - j - The day of the month without leading zeros (1 to 31)
  - N - Numeric representation of a day (1 for Monday, 7 for Sunday)
  - F - Textual representation of a month (January through December)
  - m - A numeric representation of a month (from 01 to 12)
  - M - A short textual representation of a month (three letters)

```
Eg : echo date("m/d/y"); // output : 04/10/13
echo date("l"); // Wednesday
```

Refer to http://php.net/manual/en/function.date.php for more

Date Function

- **PHP core also provides a number of date and time; since they are built in, you can use these functions directly within your script.**
  - date_create() : returns a new DateTime object.
  - date_format() : returns a date formatted according to the specified format.
  - getdate() : returns date/time info of a timestamp or current date/time.

```
$date=date_create("2013-03-15");
print_r($date);
//DateTime Object ( [date] => 2013-03-15 00:00:00.000000 [timezone_type] => 3 [timezone]=>
Europe/Berlin )
echo date_format($date,"Y/m/d H:i:s");     //2013/03/15 00:00:00
```

```
print_r(getDate()); //Returns an associative array of information
Array ( [seconds] => 31 [minutes] => 45 [hours] => 19 [mday] => 18 [wday] => 3 [mon] => 2 [year] =>
2015 [yday] => 48 [weekday] => Wednesday [month] => February [0] => 1424285131)
```

Global Variables - Superglobals

- Several predefined variables in PHP are "superglobals“
  - This means that they are always accessible, regardless of scope - and you can access them from any function, class or file without having to do anything special.
- They are:
  - $GLOBALS : used to access global variables from anywhere in the script
  - $_SERVER : holds information about headers, paths, and script locations
  - $_REQUEST : used to collect data after submitting an HTML form
  - $_POST : used to collect form data after submitting form with method="post"
  - $_GET : used to collect form data after submitting form with method=“get"
  - $_FILES : An associative array of items uploaded to the current script via the HTTP POST method
  - $_COOKIE : represents data available to a PHP script via HTTP cookies.
  - $_SESSION : represents data available to a PHP script that has previously been stored in a session.

$_SERVER Superglobal

- Holds information about headers, paths, and script locations
- Some of the most important elements that can go inside $_SERVER:

Element/Code	Description
$_SERVER['PHP_SELF']	Returns the filename of the currently executing script
$_SERVER['SERVER_NAME']	Returns the name of the host server (such as www.mysite.com)
$_SERVER['REQUEST_METHOD']	Returns the request method used to access the page (eg POST)
$_SERVER['QUERY_STRING']	Returns the query string if the page is accessed via a query string. Everything after the ? in the URL (e.g., name=Fred+age=35).
$_SERVER['REMOTE_ADDR']	Returns the IP address from where the user is viewing the current page
$_SERVER['REMOTE_HOST']	Returns the Host name from where the user is viewing the current page
$_SERVER['SCRIPT_FILENAME']	Returns the absolute pathname of the currently executing script
$_SERVER['PATH_TRANSLATED']	Returns the file system based path to the current script
$_SERVER['SCRIPT_NAME']	Returns the path of the current script
$_SERVER['SCRIPT_URI']	Returns the URI of the current page

$_SERVER

Demo

```
<?php
echo "Filename of executing script : " . $_SERVER['PHP_SELF'];
echo "Name of the host server : " . $_SERVER['SERVER_NAME'];
echo "Host header from the current request : " . $_SERVER['HTTP_HOST'];
echo "User agent : " . $_SERVER['HTTP_USER_AGENT'];
echo "Path of the current script : " . $_SERVER['SCRIPT_NAME'];
?>
```

```
Filename of executing script : /phpdemo/test9_SERVER.php
Name of the host server : localhost
Host header from the current request : localhost
User agent : Mozilla/5.0 (Windows NT 10.0; WOW64; rv:52.0) Gecko/20100101 Firefox/52.0
Path of the current script : /phpdemo/test9_SERVER.php
```

$_POST and $_GET

- **$_POST : used to collect form data after submitting an HTML form with method="post".**

```
<?php
   $name = $_POST['fname']; // collect value of input field
   if (empty($name)) echo "Name is empty";
    else echo $name;
?>
```

- **$_GET: used to collect form data after submitting an HTML form with method="get“**

Mainpage.php

```
<body>
<a href="test_get.php?fname=Anil&lname=Patil">Test $GET</a>
</body>
```

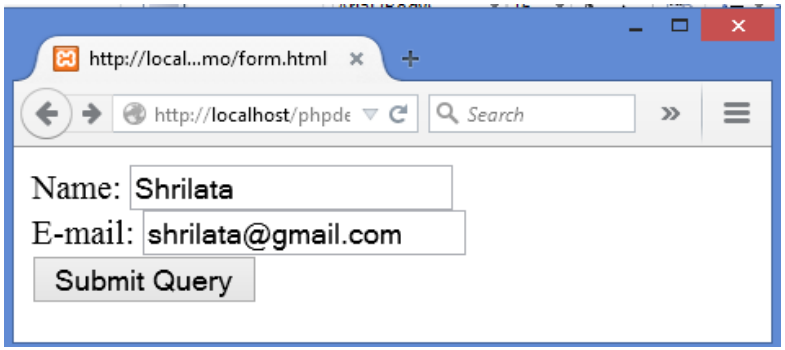
test_get.php

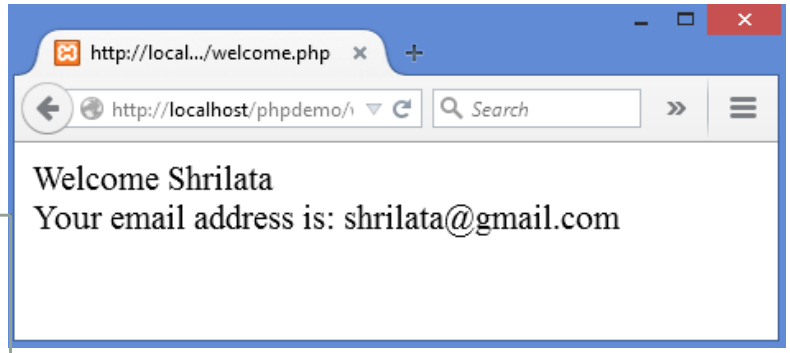
```
<body>
<?php   echo "Study " . $_GET[‘fname'] . " at " . $_GET[‘lname'];    ?>
</body>
```

Form Handling ($_POST)

```
//form.html
<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>
```

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



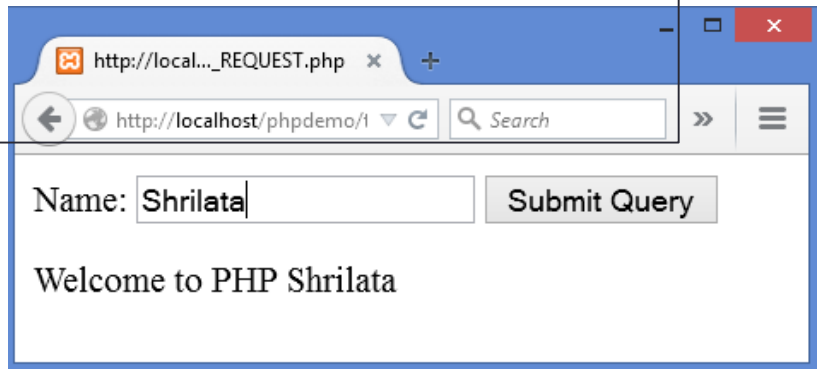


$_REQUEST

- **Used to collect data after submitting an HTML form**

```
<body>
<form method="get" action="<?php echo $_SERVER['PHP_SELF'];?>">
  Name: <input type="text" name="fname">
  <input type="submit">
</form>

<?php
if ($_SERVER["REQUEST_METHOD"] == "GET") {
    $name = $_REQUEST['fname']; // collect value of input field
    if (empty($name)) {
        echo "Name is empty";
    } else {
        echo "Welcome to PHP " . $name;
    }
}
?>
</body>
```

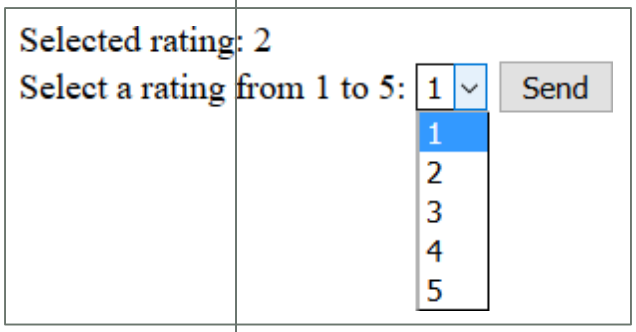


Form Validation

- **Isset() : Determine if a variable is set and is not NULL**
  - The isset() function returns TRUE, if the variable inside parentheses is set

```
$s1 = isset($name); // $s1 is false
$name = "Fred";
$s2 = isset($name); // $s2 is true
```

```
<?php
if(isset($_POST["selRating"]))  {
     $number = $_POST["selRating"];
     if((is_numeric($number)) && ($number > 0) && ($number < 6))
          echo "Selected rating: " . $number;
     else
         echo "The rating has to be a number between 1 and 5!";
}
?>
<form action="<?php echo $_SERVER['PHP_SELF']; ?>" method="post">
   Select a rating from 1 to 5:
   <select name="selRating">
      <option value="1">1</option>
      <option value="2">2</option>
      <option value="3">3</option>
      <option value="4">4</option>
      <option value="5">5</option>
   </select>
   <input type="submit" name="btnSendForm" value="Send" />
</form>
```



Advanced form handling

- **Multivalued Parameters in select element:**
- **HTML's select tag allows multiple selections**
  - To process such multiple selection, you need to make the name of the field in the HTML form end with []. Eg:

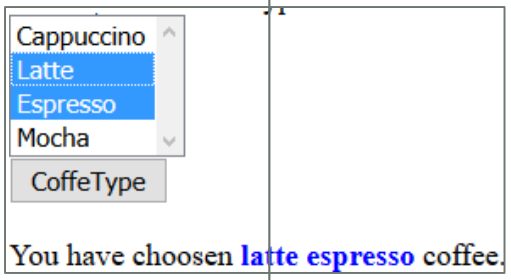
```
<select name="languages[]">
  <option name="c">C</input>
  <option name="c++">C++</input>
  <option name="php">PHP</input>
  <option name="perl">Perl</input>
</select>
```

  - Now, when the user submits the form, $_GET['languages'] contains an array instead of a simple string.
  - This array contains the values that were selected by the user.

/selectElement.php?coffee[]=latte&coffee[]=espresso&submitbtn=CoffeType

```
<form action="<?php echo $_SERVER['PHP_SELF']; ?>" method="GET">
<select name="coffee[]" multiple>
   <option value="cappuccino">Cappuccino</option>
   <option value="latte">Latte</option>
   <option value="espresso">Espresso</option>
   <option value="mocha">Mocha</option>
</select><br />
<input type="submit" name="submitbtn" value="CoffeType" />
</form>

<?php if (array_key_exists('submitbtn', $_GET)) {
/* array_key_exists() : checks an array for a specified key & returns true if the key
exists else false. $_GET is an array and so we check if submit button has been
clicked  $_GET['coffee'] contains an array which contains the values that were
selected by the user  */
$description = join(' ', $_GET['coffee']);  //join() converts array into string
echo "You have choosen <b><font color='blue'>$description</font></b> coffee.";
}
?>
```



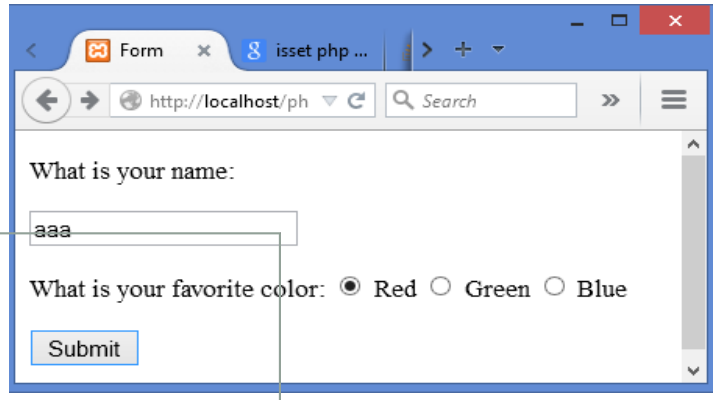
Advanced form handling

- **Multivalued Parameters in checkbox element**

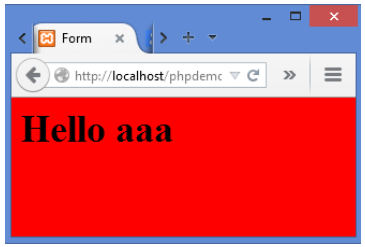
```
<html>
<body>
<form action="<?php $_SERVER['PHP_SELF']; ?>" method="GET">
Select your Language:<br />
<input type="checkbox" name=“language[]" value=“cpp" /> C++<br />
<input type="checkbox" name="language[]" value=“java" /> Java<br />
<input type="checkbox" name="language[]" value=“csharp" /> C#<br />
<input type="checkbox" name="language[]" value=“cobol" />Cobol<br />
<input type="submit" name="submitBtn" value=“Choose Language!" />
</form>
<?php if (array_key_exists('s', $_GET)) {
   $description = join (' ', $_GET[‘language']);
   echo "You have choosen {$description} languages.";
} ?>
</body>
</html>
```

Advanced form handling

- **Working with radio buttons**




```
<body>
    <form method="post" action="handler.php">
      <p>What is your name:</p>
      <input type="text" name="username"></p>
      <p>What is your favorite color:
      <input type="radio" name="favoritecolor" value="r" /> Red
      <input type="radio" name="favoritecolor" value="g" /> Green
     <input type="radio" name="favoritecolor" value="b" /> Blue </p>
     <input type="submit" value="Submit" />
   </form>
</body>
```




```
switch ($_POST["favoritecolor"]) {
  case "r":  $strBackgroundColor = "rgb(255,0,0)"; break;
  case "g"; $strBackgroundColor = "rgb(0,255,0)"; break;
  case "b": $strBackgroundColor = "rgb(0,0,255)"; break;
  default:   $strBackgroundColor = "rgb(255,255,255)"; break;
}
```

PHP
Session

- **A session is a way to store information (in variables) to be used across multiple pages.**
  - session_start() : starts a session
    - The session_start() function first checks for an existing sessionID.
    - If it finds one, i.e. if the session is already started, it sets up the session variables and if doesn't, it starts a new session by creating a new sessionID.
- **Session variables are set as key-value pairs with the global variable: $_SESSION**
  - The stored data can be accessed during lifetime of a session

```
$_SESSION["firstname"] = "Peter";
$_SESSION["lastname"] = "Parker";
```

  - session_unset() : to remove session data, simply unset the corresponding key of the $_SESSION
  - session_destroy() : destroy the session

Session Demo

SessionExample1.php

```
<?php
session_start(); // Start the session
?>
<body>
<?php
// Set session variables
$_SESSION["favcolor"] = "green";
$_SESSION["favanimal"] = "cat";
echo "Session variables are set.";
?>
<a href="SessionExample2.php">Follow </a> link to go to SessionExample2.php
</body>
```

Session variables are set.

Follow link to go to SessionExample2.php

SessionExample2.php

```
<?php
session_start();
?>
<?php
echo "Favorite color is " . $_SESSION["favcolor"] . ".<br>";
echo "Favorite animal is " . $_SESSION["favanimal"] . ".";
?>
```

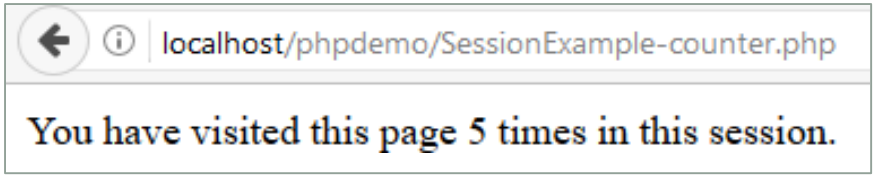
Favorite color is green.
Favorite animal is cat.

Another Session Demo

```
<?php
   session_start();

   if( isset( $_SESSION['counter'] ) ) {
      $_SESSION['counter'] += 1;
   }else {
      $_SESSION['counter'] = 1;
   }
   $msg = "You have visited this page ".  $_SESSION['counter'];
   $msg .= " times in this session.";
?>
<html>
   <body>
      <?php  echo ( $msg ); ?>
   </body>

</html>
```



E-mail With PHP

- **Server side scripting language must provide a way of sending e-mail from the server and, in particular, to take form input and output it to an e-mail address**
- **mail($to,$subject,$body[,$headers]); - for sending mail**

```
$to = “abc@gmail.com";
$subject = "Hi There!";
$body = "PHP is one of the best scripting languages around";
$headers = "From: xyz@gmail.com\n";
mail($to,$subject,$body,$headers);
```

Cookie
s

- **setcookie(cookie-name,cookie-value): instructs the browser to save a cookie**
  - setcookie(name, value, expire, path, domain, secure);
  - setcookie() goes via response header, which means that it has to be called before any output is made to the browser (including text, HTML etc)
    - The value you set can't be read until next time the page is loaded, ie you can't save a cookie and read the value in the same page execution
  - Eg : setcookie("user_name", "John Doe"); //cookie expires when session ends
  - Eg : setcookie("age", "36", time()+3600); //cookie expires after 1 hour
- **The value can be retrieved again by using the $_COOKIE superglobal**
  - Eg : echo $_COOKIE["user_name"];
- **To delete a cookie, use the setcookie() function with an expiration date in the past**
  - Eg : setcookie("user", "", time() - 3600); //set expiration date to one hour ago

Cookie Demo

```
<?php
 setcookie("name", "John Watkin", time()+3600, "/","", 0); //expires after one hour
 setcookie("age", "36", time()+3600, "/", "",  0);
?>
<body>
<?php echo "Set Cookies"?>
</body>
```

cookieSetExample.php

```
<body>
<?php
echo "Getting cookie info.....<hr><br>";
if(!isset($_COOKIE["name"]))
    echo "No cookie set!";
 else {
    echo "Cookie is set!<br>";
    echo "Name is : " . $_COOKIE["name"]. "<br />";
    echo "Age is : " .$_COOKIE["age"] . "<br />";
}
?>
</body>
```

cookieGetExample.php

Getting cookie info.....

Cookie is set!
Name is : John Watkin
Age is : 36

File handling (read)

- **File handling is an important part of any web application. You often need to open and process a file for different tasks.**
  - PHP has several functions for creating, reading, uploading, and editing files
  - **readfile(filename)**: reads a file and writes it to the output buffer
    - is useful if all you want to do is open up a file and read its contents
  - **fopen(filename,mode)** : similar to readfile(), but gives more options
    - If an attempt to open a file fails then fopen returns a value of false otherwise it returns a file pointer which is used for further reading or writing to that file.

Mode	What it does
r	Opens the file for reading only.
r+	Opens the file for reading and writing.
w	Opens the file for writing only and clears the contents of file. If files does not exist then it attempts to create a file.
w+	Opens the file for reading and writing and clears the contents of file. If files does not exist then it attempts to create a file.
a	Append. Opens the file for writing only. Preserves file content by writing to the end of the file. If files does not exist then it attempts to create a file.
a+	Read/Append. Opens the file for reading and writing. Preserves file content by writing to the end of the file. If files does not exist then it attempts to create a file.

File handling (read)

- **filesize(filename)** : returns file length in bytes
- **fread(filepointer, length of file)** : read a file that is opened with fopen()
- **fclose(filepointer)** : close the file

```
<?php  echo readfile("sample.txt");     ?>
```

twinkle twinkle Little star How i wonder What you are56

```
//sample.txt
twinkle twinkle
Little star
How i wonder
What you are
```

```
<?php
$filename = "sample.txt";
$fileptr = fopen( $filename, "r" );
if( $fileptr == false ) {
   echo ( "Error in opening file" ); exit();
}
$filesize = filesize( $filename );
$filetext = fread( $fileptr, $filesize );
fclose( $fileptr );
echo ( "File size : $filesize bytes" );
echo ( "<pre>$filetext</pre>" );
?>
```

File size : 56 bytes

```
twinkle twinkle
Little star
How i wonder
What you are
```

File handling (read)

- **file_get_contents() : reads file contents into a string**

```
$dataStr = file_get_contents($filename);
echo $dataStr;
```

```
twinkle twinkle Little star How i wonder What you are
```

- **file() - Reads entire file into an array with each line of the file corresponding to an element of the array**

```
$filename = "sample.txt";
$dataArr = file($filename);
print_r($dataArr);
```

```
Array ( [0] => twinkle twinkle [1] => Little star [2] => How i wonder [3] => What you are )
```

- **fgets(filename) : used to read a single line from a file**

```
<?php
$myfile = fopen("webdictionary.txt", "r") or die("Unable to open file!");
//die() : prints a message and exits the current script
echo fgets($myfile);  //reads first line only
fclose($myfile);
?>
```

```
while(!feof($myfile)) {
  echo fgets($myfile) . "<br>";
}
```

File handling

- **file_exists(filename) : checks existence of file**
- **feof() : checks if the "end-of-file" (EOF) has been reached**

```
$file_open = '/home/httpd/index.htm';
if (file_exists($file_open))
   echo "The file $file_open exists";
else
   echo "The file $file_open does not exist"
```

- **fwrite(filepointer, text to be written,[data length]) : A new file can be written or text can be appended to an existing file**

```
$filename = "newfile.txt";
$file = fopen( $filename, "w" );
fwrite( $file, "This is  a simple test\n" );
fclose( $file );
if( file_exists( $filename ) )  {
   $filesize = filesize( $filename );
    echo "File  created with name $filename containing $filesize bytes ";
}
else  echo ("File $filename does not exit" );
```

File handling

- **copy() : creates a copy of a file**

```
$source = "dummy.txt";
$destination = "dummy.txt.backup";
// copy file if it exists, else exit
if (file_exists($source)) {
    copy ($source, $destination) or die ("Cannot copy file '$source'");
    echo "File successfully copied.";
} else    die ("Cannot find file '$source'");
```

- **unlink() : delete a file**

```
$file= "dummy.txt";
if (file_exists($file)) {
    unlink ($file) or die("Cannot delete file '$file'");
    echo "File successfully deleted.";
} else  die ("Cannot find file '$file'");
```

File handling : CSV (Comma Separated Values) files

- fgetcsv() : allows you to work with CSV file; similar to fgets()
  - fgetcsv( ) separates each line on the commas & puts each part into an array.
  - Syntax : fgetcsv(file,length,separator)
    - Length : Optional. Specifies the maximum length of a line. Must be greater than the longest line (in characters) in the CSV file. Required in versions prior to PHP 5
    - Separator : A character that specifies the field separator. Default is comma (,)

```
1001,Harry,Accts
1002,Jerry,Sales
1003,Tom,Mktg
```

emp.csv

```
Array ( [0] => 1001 [1] => Harry [2] => Accts )
```

Output – reads a single line

```
<?php
$file = fopen("emp.csv","r");
print_r(fgetcsv($file));
fclose($file);
?>
```

readCSV.php

```
Array ( [0] => 1001 [1] => Harry [2] =>Accts )
Array ( [0] => 1002 [1] => Jerry [2] => Sales ) Array (
[0] => 1003 [1] => Tom [2] => Mktg )
```

```
while(! feof($file)) {
   print_r(fgetcsv($file));
 }
```

Reads all lines from csv file

Output

File handling : CSV (Comma Separated Values) files

- **update or write to a CSV file using the function fputcsv()**

```
$file = "employees.csv";
$f = fopen($file, "a");

$newFields = array(
    array('Tom', 'Jones', 36, 'Accountant'),
    array('Freda', 'Williams', 45, 'Analyst'),
    array('Brenda', 'Collins', 34, 'Engineer'));

foreach($newFields as $fields)  {
            fputcsv($f, $fields);
}
fclose($f);
```

Using the die() function

```
<?php
$file=fopen("welcome.txt","r");
?> //if file does not exist? --->
```

```
Warning: fopen(welcome.txt) [function.fopen]: failed to open stream:
No such file or directory in C:\webfolder\test.php on line 2
```

If the file does not exist you might get an error like above

- We can test whether the file exist before we try to access it. die() is a simple error handling mechanism to stop the script after the error.
- die(message) : prints a message and exits the current script.

```
<?php
if(!file_exists("welcome.txt")) {
      die("File not found");
} else {
     $file=fopen("welcome.txt","r");
}
?>
```

DB operations

- **Step-1: Open a Connection using MySQLi procedural**
  - mysqli_connect(host,[username][,password][,dbname])
  - Upon success it returns an identifier to the server; otherwise, FALSE

```
<?php
$servername = "localhost";
$username = "root";
$password = "";

// Create connection
$conn = mysqli_connect($servername, $username, $password);

// Check connection
if (!$conn) {
    die("Connection failed: " . mysqli_connect_error());
}
echo "Connected successfully";
?>
```

The connection will be closed automatically when the script ends. To close the connection before, use the mysqli_close($conn);

Steps to perform DB operations

- **Step 2 : Create a database**
  - **mysqli_query(***connection,query***) :** Perform queries against the database

```
$servername = "localhost";
$username = "root";
$password = "";

$conn= mysqli_connect($servername, $username, $password) or die ("could
not connect to mysql" . mysqli_connect_error());

// Create database
$sql = "CREATE DATABASE mySqlDB";
if (mysqli_query($conn, $sql)) {
    echo "Database created successfully";
} else {
    echo "Error creating database: " . mysqli_error($conn);
}

mysqli_close($conn);
```

Steps to perform DB operations

- **Step-3 : Create a Table**

```
$servername = "localhost";
$username = "root";
$password = "";
$dbname = "mySqlDB";
$conn= mysqli_connect($servername, $username, $password, $dbname) or
      die ("could not connect to mysql" . mysqli_connect_error());

$sql = "CREATE TABLE test (
id INT(6) UNSIGNED PRIMARY KEY,
name VARCHAR(15) NOT NULL )";

if (mysqli_query($conn, $sql))
    echo "Table test created successfully";
else
    echo "Error creating table: " . mysqli_error($conn);

mysqli_close($conn);
```

Steps to perform DB operations

- **Step-4a : Insert single record into table**

db4-getConn.php

```
<?php
$servername = "localhost";
$username = "root";
$password = "";
$dbname = "mySqlDB";
$conn= mysqli_connect($servername, $username, $password, $dbname) or
     die ("could not connect to mysql" . mysqli_connect_error());  ?>
```

db5-InsertRow.php

```
include_once("db4-getConn.php");

$sql = "INSERT INTO test (id, name) VALUES (10,'John')";

if (mysqli_query($conn, $sql))
   echo "New record created successfully";
else
   echo "Error: " . $sql . "<br>" . mysqli_error($conn);

mysqli_close($conn);
```

Steps to perform DB operations

- **Step-4b : Insert multiple records into table**
  - **mysqli_multi_query(***connection,query***) :** Perform multiple queries against the database

```
<?php
include_once("db4-getConn.php");

$sql = "INSERT INTO test (id, name) VALUES (20,'Geeta');";
$sql .= "INSERT INTO test (id, name) VALUES (30,'Meeta');";
$sql .= "INSERT INTO test (id, name) VALUES (40,'Vanita');";

if (mysqli_multi_query($conn, $sql)) {
    echo "New records created successfully";
} else {
    echo "Error: " . $sql . "<br>" . mysqli_error($conn);
}

mysqli_close($conn);
?>
```

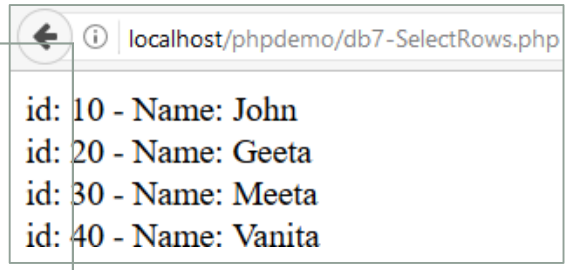
Steps to perform DB operations

- **Step-5 : Fetching result**
  - mysqli_result=mysqli_query(connection,query);
    - For successful SELECT queries it will return a mysqli_result object. For other successful queries it will return TRUE; FALSE otherwise
  - mysqli_num_rows(result) : returns the number of rows in a result set
  - mysqli_fetch_assoc() : fetches a result row as an associative array; NULL if there are no more rows in result-set

```
include_once("db4-getConn.php");
$sql = "SELECT id, name FROM test";
$result = mysqli_query($conn, $sql);

if (mysqli_num_rows($result) > 0) {
    while($row = mysqli_fetch_assoc($result)) {
        echo "id: " . $row["id"]. " - Name: " . $row["name"]. "<br>";
    }
} else  echo "0 results";

mysqli_close($conn);
```



Steps to perform DB operations

- **Step-5 : Fetching result**
- **Other ways of fetching result:**
  - mysqli_fetch_all(*result,resulttype*) *:* fetches all result rows and returns the result-set as an associative array, a numeric array, or both.

```
$result = mysqli_query($conn, $sql);
$arr = mysqli_fetch_all($result,MYSQLI_NUM);
print_r($arr);
```

```
Array ( [0] => Array ( [0] => 10 [1] => John )
[1] => Array ( [0] => 20 [1] => Shrilata ) [2]
=> Array ( [0] => 30 [1] => Meeta ) )
```

```
$result = mysqli_query($conn, $sql);
$arr = mysqli_fetch_all($result, MYSQLI_ASSOC);
print_r($arr);
```

```
Array ( [0] => Array ( [id] => 10 [name] => John
) [1] => Array ( [id] => 20 [name] => Shrilata )
[2] => Array ( [id] => 30 [name] => Meeta ) )
```

  - mysqli_fetch_row() : fetches one row from a result-set and returns it as an enumerated array

```
while ($row=mysqli_fetch_row($result)){
    print_r($row);echo "<br>";
}
```

```
Array ( [0] => 10 [1] => John )
Array ( [0] => 20 [1] => Shrilata )
Array ( [0] => 30 [1] => Meeta )
```

Steps to perform DB operations

- **Step-6 : Update/Delete rows**

```
include_once("db4-getConn.php");

$sql = "DELETE FROM test WHERE id=40";     // sql to delete a record

if (mysqli_query($conn, $sql))
    echo "Record deleted successfully";
else  echo "Error deleting record: " . mysqli_error($conn);

$sql = "UPDATE test SET name='Shrilata' WHERE id=20";

if (mysqli_query($conn, $sql))
       echo "Record updated successfully";
else  echo "Error updating record: " . mysqli_error($conn);

mysqli_close($conn);
```

PHP & XML

Parsing XML With SimpleXML

- **PHP 5's new SimpleXML module simplifies parsing an XML document**
  - SimpleXML is a tree-based parser.
  - Turns an XML doc into an object that provides structured access to the XML.

```
$xmlstr = "<?xml version='1.0' encoding='UTF-8'?> <person>
<fname>Navin</fname><lname>Dutt</lname>
<email>navin.dutt@gmail.com</email><phone>99800675432</phone>
</person>";

$xmlobj=simplexml_load_string($xmlstr) or die("Error: Cannot create object");
print_r($xmlobj); //printing entire SimpleXmlObject

echo "First name : " . $xmlobj->fname . "<br>";
echo "Last name : " . $xmlobj->lname . "<br>";
echo "Email : " . $xmlobj->email . "<br>";
echo "Phone : " . $xmlobj->phone;
```

Loading XML file

```
$xmlobj=simplexml_load_file("student.xml") or die("Error: Cannot create object");
print_r($xmlobj); //printing entire SimpleXmlObject

echo $xmlobj->student[0]->firstname . "<br>";
echo $xmlobj->student[1]->firstname . "<br>";
echo $xmlobj->student[2]->firstname . "<br>";

foreach($xmlobj->children() as $students) {
    echo $students->firstname . ", ";
    echo $students->lastname . ", ";
    echo $students->marks . "<br>";
}

//getting attibute values:
echo $xmlobj->student[0]['rollno'] . "<br>";
```

```
<?xml version="1.0"?>
<class>
  <student rollno="393">
    <firstname>Dinkar</firstname>
    <lastname>Kad</lastname>
    <nickname>Dinkar</nickname>
    <marks>85</marks>
  </student>
  <student rollno="493">
    <firstname>Vaneet</firstname>
    <lastname>Gupta</lastname>
    <nickname>Vinni</nickname>
    <marks>95</marks>
  </student>
  <student rollno="593">
    <firstname>Jasvir</firstname>
    <lastname>Singh</lastname>
    <nickname>Jazz</nickname>
    <marks>90</marks>
  </student>
</class>
```

```
------- printing SimpleXmlObject -----
Dinkar
Vaneet
Jasvir
------- Get Node Values - Loop ---------
Dinkar, Kad, 85
Vaneet, Gupta, 95
Jasvir, Singh, 90
-------- getting attibute values ----------
393
```

Reading XML using the DOM library

- **Built-in DOM parser makes it possible to process XML documents in PHP.**
  - How to do? Initialize the XML parser, load the xml, and output it

```
<contact-info>
  <name>Shrilata Tavargeri</name>
  <company>XYZ Education</company>
  <phone>(020) 1230-4567</phone>
</contact-info>
```

```
<?php
$xmlDoc = new DOMDocument();  //create a DOMDocument-Object
$xmlDoc->load("Address.xml");  //loads the XML into it
print $xmlDoc->saveXML();  //saveXML() puts the internal XML doc into a string

echo "<br>" . "------- Get Node Values - Loop ----------" . "<br>";

$x = $xmlDoc->documentElement;
foreach ($x->childNodes AS $item) {
  print $item->nodeName . " = " . $item->nodeValue . "<br>";
}
?>
```

```
Shrilata Tavargeri XYZ Education (020) 1230-4567
```

```
#text =
name = Shrilata Tavargeri
#text =
company = XYZ Education
#text =
phone = (020) 1230-4567
#text =
```

BOOTSTRAP

Getting Bootstrap Ready

- **There are two ways to start using Bootstrap on your own web site.**
  - Download Bootstrap from the oficial website http://getbootstrap.com/ and include it in your HTML file with little or no customization.
  - Include Bootstrap from a CDN
    - The http://getbootstrap.com/getting-started/ page gives CDN links for CSS and js files
  - A Basic template can be created using the bootstrap files and jquery libraries

```
<!DOCTYPE html>
<html>
<head>
   <meta charset="utf-8">
   <meta name="viewport" content="width=device-width, initial-scale=1">
   <title>First Bootstrap demo</title>
   <link rel="stylesheet" type="text/css" href="../scripts/css/bootstrap.css">
 </head>
 <body>
     <H1>Hello World!!</H1>
     <script src="../scripts/js/jquery-1.11.0.min.js"></script>
     <script src="../scripts/js/bootstrap.js"></script>
 </body>
</html>
```

Bootstrap Container

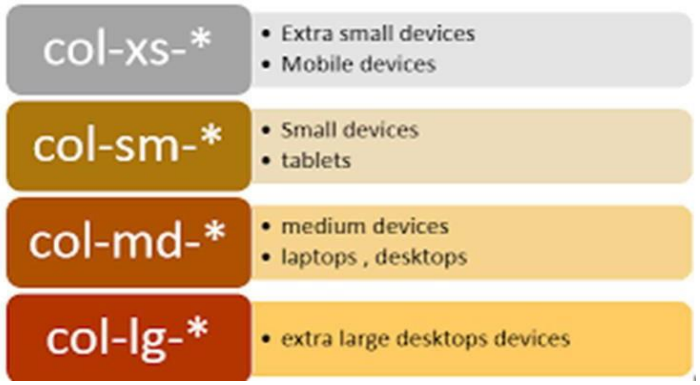
- **Container is used to wrap the site contents and contain its grid system**
  - Thus dealing with the responsive behaviors of your layout.
  - There are two container classes in Bootstrap:
    - Fixed Container : Afixed container is a (responsive) fixed width container.
    - Fluid Container : A fluid container spans the full width of the viewport.
  - Note: A container cannot be placed inside a container

```
<body>
    <div class="container">
        <h1>Container</h1>
        <p>container content</p>
    </div>
</body>
```

Bootstrap Grid System

- **Bootstrap grid system allows to properly house the website's content.**
  - Grid system divides the screen into columns—up to 12 in each row.
  - The column widths vary according to the size of screen they're displayed in.
  - Hence, Bootstrap's grid system is responsive, as the columns resize themselves dynamically when the size of browser window changes.

- 4 types of col classes for different size displays:
  - col-xs for extra small displays (screen width < 768px)
  - col-sm for smaller displays (screen width ≥ 768px)
  - col-md for medium displays (screen width ≥ 992px)
  - col-lg for larger displays (screen width ≥ 1200px)




```
<div class="container">
   <div class="row">
      <div class="col-xs-12 col-sm-6 col1">
         <h4>Column 1</h4>
      </div>
      <div class="col-xs-12 col-sm-6 col2">
         <h4>Column 2</h4>
      </div>
   </div>
</div>
```

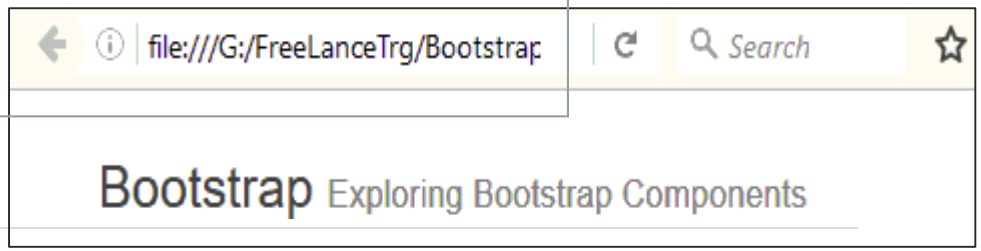
Page Components

- **Page components form the basic structure of a web page.**
  - Examples include page headers, standout panels for displaying important info, nested comments sections, image thumbnails, and stacked lists of links
- **Page Headers :**
  - Eliminates efforts to neatly display a title with cleared browser default styles, the proper amount of spacing around it, and a small subtitle beside it

```
<div class="page-header">
        <h1>BootStrap</h1>
</div>
```

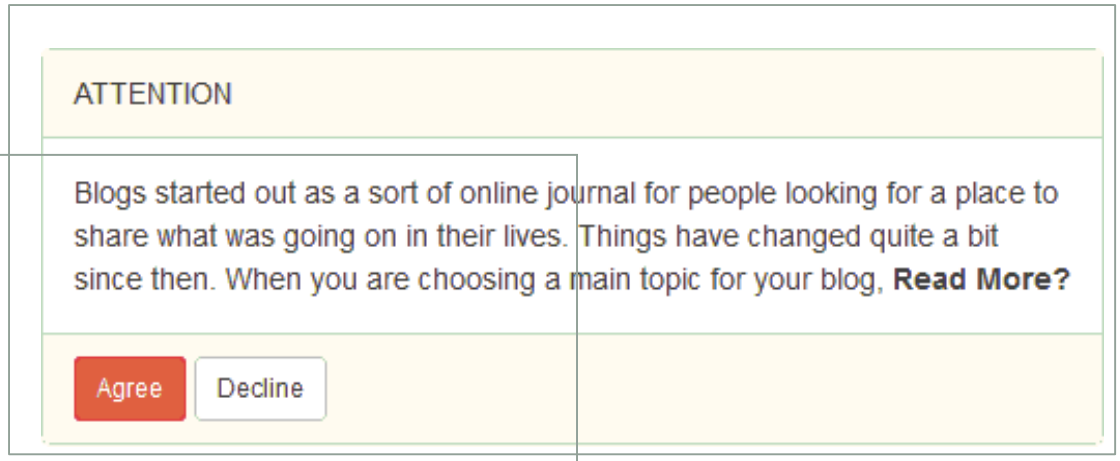
  - To add a subtitle beside the title of the page, you can put it inside the same <h1> tag that we used before; wrap the subtitle inside a <small></small> tag

```
<div class="container">
   <div class="page-header">
        <h1> Bootstrap <small>Exploring Bootstrap Components
</small></h1>
    </div>
</div>
```



Page Components : Panels

- **Panels are used to display text/images within a box with rounded corners.**
  - The panel div is divided into three parts: the panel-head, panel-body, and panel-footer. Each of these panel parts is optional.




```
<div class="panel panel-default">
   <div class="panel-heading">
          ATTENTION
   </div>
   <div class="panel-body">
          Body…..,
    </div>
    <div class="panel-footer">
        <a href="#" class="btn btn-danger btn-sm">Agree</a>
        <a href="#" class="btn btn-default btn-sm">Decline</a>
     </div>
</div>
```

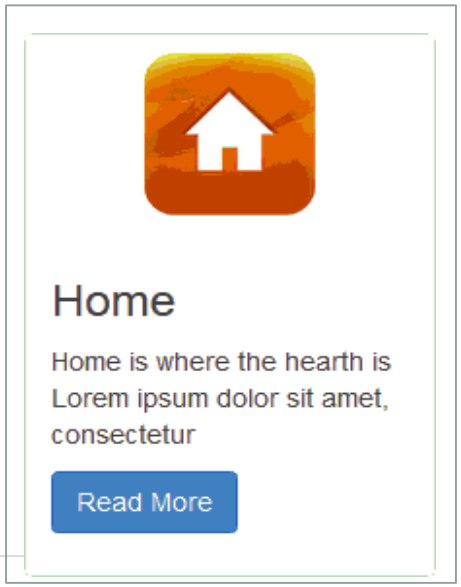
  - Panels come with various color options

- panel-primary for dark blue
- panel-success for green
- panel-info for sky blue
- panel-warning for yellow
- panel-danger for red

Page Components : Thumbnails

- **You can add some excerpts to each thumbnail and a Read More button for linking to different pages in your website.**
  - Use instead of <a>.
  - Then add an excerpt using <p> inside the “caption” div and a link with a “Read More” anchor and classes btn and btn-primary inside the same “caption” div.

```
<div class="col-xs-4">
    <div class="thumbnail">
        <img src="home.png" height=70 width=100>
        <div class="caption">
            <h3>Home</h3>
            <p>Home is where the hearth ……</p>
            <p>
              <a href="#" class="btn btn-primary">Read More</a>
            </p>
        </div>
    </div>
</div>
```

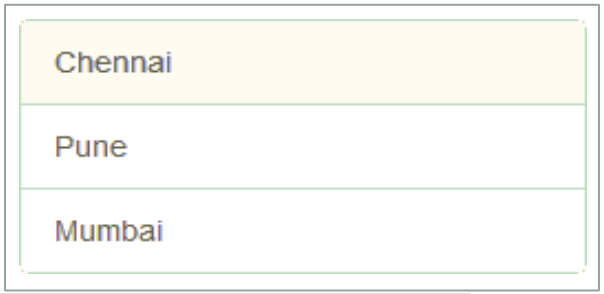


Page Components : List Group

- **List group is used for creating lists, such as a list of useful resources or a list of recent activities.**
  - You can also use it for a complex list of large amounts of textual content.
  - Add the class list-group to a ul element or a div element to make its children appear as a list.
  - The children can be li or a element, depending on your parent element choice.
  - The child should always have the class list-group-item.

```
<ul class="list-group">
    <li class="list-group-item">Inbox</li>
    <li class="list-group-item">Sent</li>
    <li class="list-group-item">Drafts</li>
    <li class="list-group-item">Deleted</li>
    <li class="list-group-item">Spam</li>
</ul>
```


```
<div class="list-group">
   <a href="#" class="list-group-item">Chennai</li>
   <a href="#" class="list-group-item">Pune</li>
   <a href="#" class="list-group-item">Mumbai</li>
</div>
```



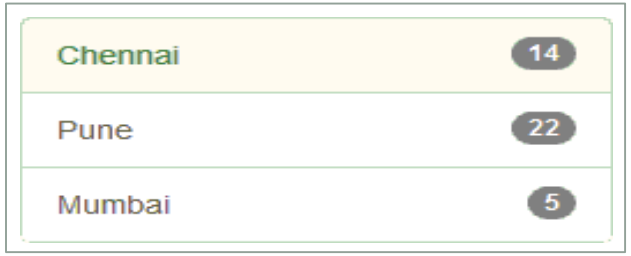
Page Components : List Group

- **We can display a number (eg to indicate pending notifications) beside each list item using the badge component.**
  - Add this inside each “list-group-item” to display a number beside each one : 14
  - The badges align themselves to the right of each list item


```
<div class="list-group">
   <a href="#" class="list-group-item">Chennai<span class="badge">14</span></a>
   <a href="#" class="list-group-item">Pune<span class="badge">22</span></a>
   <a href="#" class="list-group-item">Mumbai<span class="badge">5</span></a>
</div>
```

- We can also apply various colors to each list item by adding list-group-item-* classes along with list-group-item.

- list-group-item-success for green
- list-group-item-info for sky blue
- list-group-item-warning for pale yellow
- list-group-item-danger for light red

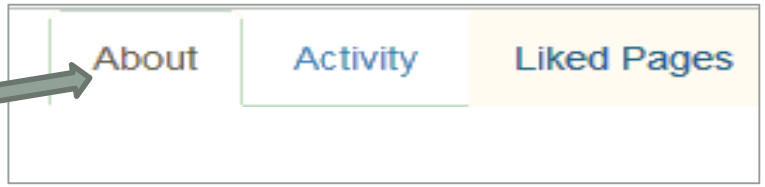



```
<li class="list-group-item list-group-item-success">Chennai</li>
```

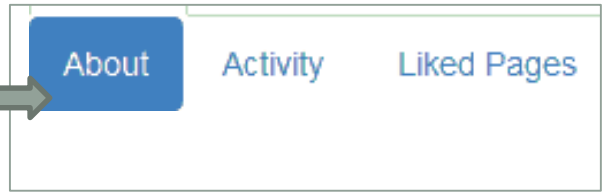
Navigation Components : Navs

- **Navs are a group of links that are placed inline with each other for navigation**
  - There are options to make this group of links appear either as tabs or small buttons, the latter known as pills in Bootstrap.
  - To create tab-like navigation links:

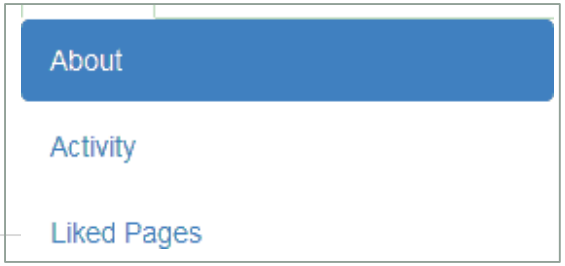
```
<ul class="nav nav-tabs">
    <li class="active"><a href="#">About</a></li>
    <li><a href="#">Activity</a></li>
    <li><a href="#">Liked Pages</a></li>
</ul>
```




```
<ul class="nav nav-pills">
    <li class="active"><a href="#">About</a></li>
    <li><a href="#">Activity</a></li>
    <li><a href="#">Liked Pages</a></li>
</ul>
```



  - Vertically stack these pills by attaching an additional class nav-stacked to it



```html
<body>
    <div class="container">

        <!-- tab-like navigation links  -->
        <ul class="nav nav-tabs">
            <li class="active"><a href="#">About</a></li>
            <li><a href="#">Activity</a></li>
            <li><a href="#">Liked Pages</a></li>
        </ul>
        <!-- button (pills) navigation links  -->
        <ul class="nav nav-pills nav-stacked">
            <li class="active"><a href="#">About</a></li>
            <li><a href="#">Activity</a></li>
            <li><a href="#">Liked Pages</a></li>
        </ul>
```

Navigation Components : Navbar

- **navbar gives you the power to generate portions of self-contained bars, which could be used as whole-application headers, versatile secondary menus for page content, or as a shell of various navigation-related elements.**
  - First build a div element, with two classes navbar and navbar-default.

```
<div class="navbar navbar-default">
</div>
```

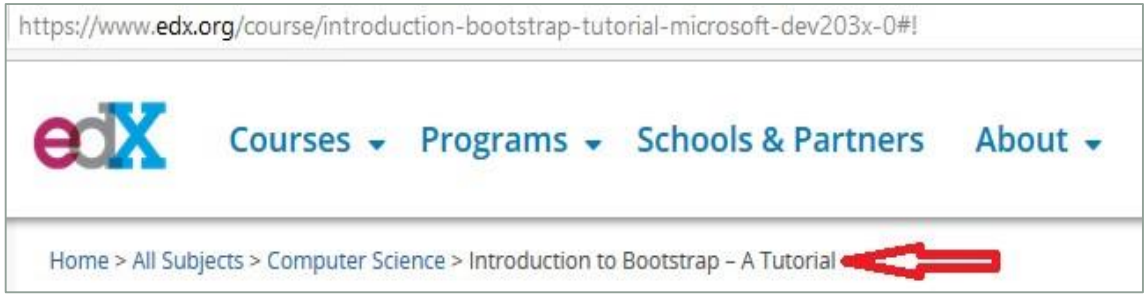
  - Next, we'll use a div with class container-fluid inside this navbar element.

```
<div class="navbar navbar-default">
    <div class="container-fluid">
    </div>
</div>
```

```
<nav class = "navbar navbar-default" role = "navigation">
    <div class = "navbar-header">
        <a class = "navbar-brand" href = "#">Bootstrap Point</a>
    </div>
    <div>
        <ul class = "nav navbar-nav">
            <li class = "active"><a href = "#">iOS</a></li>
            <li><a href = "#">SVN</a></li>
            <li class = "dropdown">
                <a href = "#" class = "dropdown-toggle"
                 data-toggle = "dropdown">Java<b class = "caret"></b></a>
                <ul class = "dropdown-menu">
                    <li><a href = "#">jmeter</a></li>
                    <li><a href = "#">EJB</a></li>
                    <li><a href = "#">Jasper Report</a></li>
                    <li class = "divider"></li>
                    <li><a href = "#">Separated link</a></li>
                    <li class = "divider"></li>
                    <li><a href = "#">One more separated link</a></li>
                </ul>
            </li>
        </ul>
    </div>
</nav>
```

Navigation Components : Breadcrumbs

- **Breadcrumbs are used to enhance the accessibility of your websites by indicating the location using a navigational hierarchy, especially in websites with a significant number of web pages.**




```
<ol class="breadcrumb">
    <li><a href="#">Home</a></li>
    <li><a href="#">About</a></li>
    <li class="active">Author</li>
</ol>
```

You can use <ul> instead of

Standing Out : labels

- **Labels are used to display short text beside other components, such as important messages and notes.**
  - To display a label, you need to add a label class to inline HTML elements such as span and i.

Jump Start Bootstrap New

```
<h3>Jump Start Bootstrap <span class="label label-default">New</span></h3>
```

  - class label-default is necessary to tell Bootstrap which variant of label we want to use. The available label variants are:
    - label-default for gray
    - label-primary for dark blue
    - label-success for green
    - label-info for light blue
    - label-warning for orange
    - label-danger for red

```
<span class="label label-default">Default</span>
<span class="label label-success">Success</span>
<span class="label label-warning">Warning</span>
<span class="label label-primary">Important</span>
<span class="label label-info">Info</span>
<span class="label label-danger">Danger</span>
```

Default Success Warning Important Info Danger

Standing Out : Buttons

- **Its easy to convert an a, button, or input element into a fancy bold button in Bootstrap; just have to add the btn class**

```
<a href="#" class="btn btn-primary">Click Here</a>
```

Click Here

- Buttons come in various color options:
  - btn-default for white
  - btn-primary for dark blue
  - btn-success for green
  - btn-info for light blue
  - btn-warning for orange
  - btn-danger for red
- And in various sizes:
  - btn-lg for large buttons
  - btn-sm for small buttons
  - btn-xs for extra small button

Large button | Default button | Small button | Extra small button

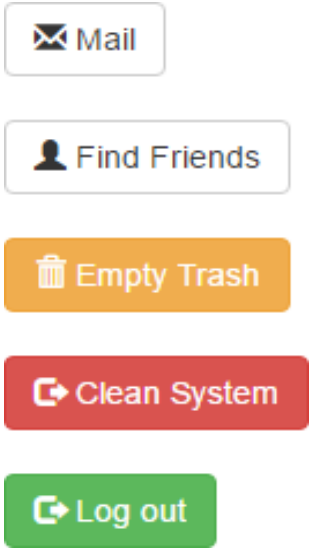
```
<button type="button" class="btn btn-primary btn-lg">Large button</button>
<button type="button" class="btn btn-primary">Default button</button>
<button type="button" class="btn btn-primary btn-sm btn-success">Small button</button>
<button type="button" class="btn btn-primary btn-xs active">Extra small button</button>
```

Standing Out : Glyphicons

- **Glyphicons are used to display small icons.**
  - They are lightweight font icons and not images.
  - There are around 260 glyphicons available for buttons, navbars , lists and other components . Eg : To display a heart icon

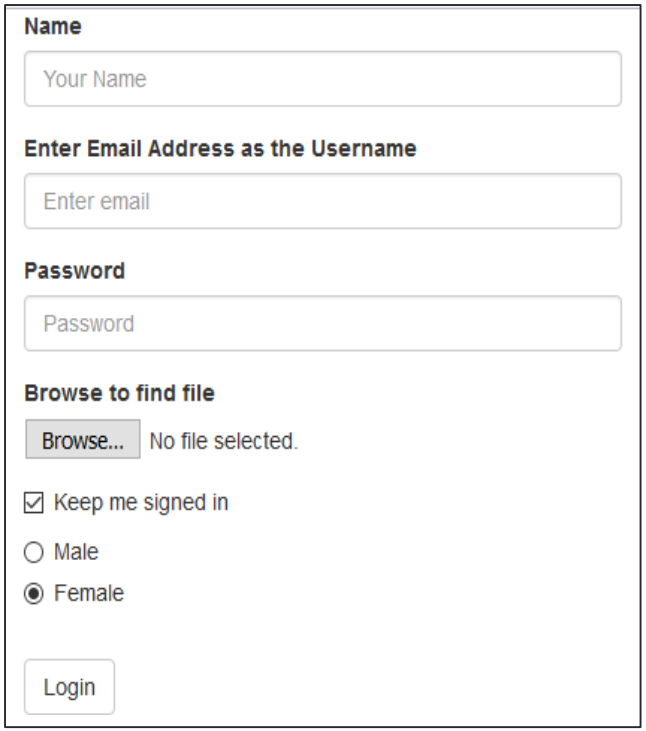
```
<span class="glyphicon glyphicon-heart">
</span>
```

```
<button type="submit" class="btn btn-default">
<span class="glyphicon glyphicon-envelope"></span> Mail</button>
<button type="submit" class="btn btn-default">
<span class="glyphicon glyphicon-user"></span> Find Friends </button>
<button type="submit" class="btn btn-warning">
<span class="glyphicon glyphicon-trash"></span> Empty Trash </button>
<button type="submit" class="btn btn-danger">
<span class="glyphicon glyphicon-log-out"></span> Clean System</button></p>
<button type="submit" class="btn btn-success">
<span class="glyphicon glyphicon-log-out"></span> Logout</button>
```



Forms

- **Bootstrap greatly simplifies the process of styling and alignment of form controls like labels, input fields, selectboxes, textareas, buttons, etc. through predefined set of classes.**
  - Bootstrap provides three different types of form layouts:
    - Vertical Form (default form layout)
    - Horizontal Form
    - Inline Form
  - Standard rules for all three form layouts:
    - Wrap labels & form controls in
    - Add class .form-control to all <input>, <textarea>, and <select> elements
- **Construct a form with form element with the form class added to it**



Vertical form

```
<form class="form">
    <div class="form-group">
        <label for="enterusername"> Enter Email Address as the Username</label>
        <input type="email" class="form-control" id="enterusername" placeholder="Enter email">
    </div>
    <div class="form-group">
        <label for="enterpassword">Password</label>
        <input type="password" class="form-control" id="enterpassword" placeholder="Password">
    </div>
    <div class="form-group">
        <label for="filebrowse">Browse to find file</label>
        <input type="file" id="filebrowse">
    </div>
    <div class="checkbox">
        <label> <input type="checkbox"> Keep me signed in </label>
    </div>
    <div class="radio">
        <label><input type="radio" name="optionsRadios" value="option1" id="radio1">Male</label>
    </div>
    <div class="radio">
        <label><input type="radio" name="optionsRadios" value="option2" id="radio2">Female</label>
    </div>
    <br>
    <button type="submit" class="btn btn-default">Login</button>
</form>
```

Forms : Horizontal Forms

- **In horizontal form layout labels are right aligned and floated to left to make them appear on the same line as form controls.**
  - Following markup changes required :
    - Add the class .form-horizontal to the <form> element.
    - Add the class .control-label to the <label> element.
    - Use Bootstrap's predefined grid classes to align labels and form controls.


```
<form class="form-horizontal">
  <div class="form-group"><label class="control-label col-sm-2" for="email">Email:</label>
    <div class="col-sm-10">
      <input type="email" class="form-control" id="email" placeholder="Enter email"></div></div>
  <div class="form-group"><label class="control-label col-sm-2" for="pwd">Password:</label>
    <div class="col-sm-10">
      <input type="password" class="form-control" id="pwd" placeholder="Enter password">
    </div></div>
  <div class="form-group">
    <div class="col-sm-offset-2 col-sm-10">
      <div class="checkbox"><label><input type="checkbox"> Remember me</label></div>
    </div></div>
  <div class="form-group">
    <div class="col-sm-offset-2 col-sm-10">
        <button type="submit" class="btn btn-default">Submit</button>
    </div> </div> </form>
```

Forms : Inline Form

- **In an inline form, all of the elements are inline, left-aligned, and the labels are alongside.**
  - *Note: This only applies to forms within viewports that are at least 768px wide!*
  - Add class .form-inline to the <form> element

```
<form class="form-inline">
  <div class="form-group">
    <label for="email">Email:</label>
    <input type="email" class="form-control" id="email" placeholder="Enter email">
  </div>
  <div class="form-group">
    <label for="pwd">Password:</label>
    <input type="password" class="form-control" id="pwd" placeholder="Enter password">
  </div>
  <div class="checkbox">
    <label><input type="checkbox"> Remember me</label>
  </div>
  <button type="submit" class="btn btn-default">Submit</button>
</form>
```

Email: Enter email **Password:** Enter password ☐ Remember me Submit

Bootstrap Typography

- **HTML uses default font and style to create headings, paragraphs, lists and other inline elements.**
  - Bootstrap overrides default and provides consistent styling across browsers for common typographic elements.
  - Eg, Bootstrap provides its own style for all six standard heading levels

```
<p class="text-muted">This text is muted.</p>
  <p class="text-primary">This text is important.</p>
  <p class="text-success">This text indicates success.</p>
  <p class="text-info">This text represents some information.</p>
  <p class="bg-primary">This text is important.</p>
  <p class="bg-success">This text indicates success.</p>
  <p class="bg-info">This text represents some information.</p>
  <p class="text-lowercase">Lowercased text.</p>
  <p class="text-uppercase">Uppercased text.</p>
  <p class="text-capitalize">Capitalized text.</p>
  <p class="text-left">Left-aligned text.</p>
  <p class="text-right">Right-aligned text.</p>
  <p class="text-center">Center-aligned text.</p>
```

Table
s

- **Bootstrap provides an efficient layout to build elegant tables**
  - A basic Bootstrap table has a light padding and only horizontal dividers.
  - The .table class adds basic styling to a table

```
<table class = "table">
  <caption>Basic Table Layout</caption>
    <thead>
      <tr><th>Name</th><th>City</th></tr>
    </thead>
    <tbody>
      <tr><td>Soha</td><td>Bangalore</td></tr>
      <tr><td>Shrilata</td><td>Pune</td></tr>
  </tbody>
</table>
```

Basic Table Layout

Name	City
Soha	Bangalore
Shrilata	Pune

Name	City
Soha	Bangalore
Shrilata	Pune
Sandeep	Mumbai
Sheela	Delhi

  - The .table-striped class adds zebra-stripes to a table
  - The .table-bordered class adds borders on all sides of the table and cells
  - The .table-condensed class makes a table more compact by cutting cell padding in half

Jumbotron

- **A jumbotron indicates a big box for calling extra attention to some special content or information.**
  - A jumbotron is displayed as a grey box with rounded corners. It also enlarges the font sizes of the text inside it.
  - Tip: Inside a jumbotron you can put nearly any valid HTML, including other Bootstrap elements/classes.
  - Use a element with class .jumbotron to create a jumbotron

```
<div class="jumbotron">
   <h1>Bootstrap Tutorial</h1>
   <p>Bootstrap is the most popular HTML, CSS, and JS framework for
        developing responsive, mobile-first projects on the web.</p>
  </div>
```

image
s

- **To add images on the webpage use element <img> , it has three classes to apply simple styles to images.**
  - .img-rounded : To add rounded corners around the edges of the image, radius of the border is **6px**.
  - .img-circle : To create a circle of radius is **500px**
  - .img-thumbnail : To add some padding with grey border , making the image look like a polaroid photo.

```
<img src="taj.jpg" class="img-rounded"> <!-- rounded  edges-->
<img src="taj.jpg." class="img-circle"> <!-- circle -->
<img src="taj.jpg" class="img-thumbnail"> <!-- thumbnail -->
```



Alert

- **Bootstrap comes with a very useful component for displaying alert messages in various sections of our website**
  - You can use them for displaying a success message, a warning message, a failure message, or an information message.
  - These messages can be annoying to visitors, hence they should have dismiss functionality added to give visitors the ability to hide them.

```
<div class="alert alert-success">
    Amount has been transferred successfully.
</div>
```

```
<div class="alert alert-success alert-dismissable">
    <button type="button" class="close" data-dismiss="alert">&times;</button>
        Amount has been transferred successfully.
</div>
```

Success! This alert box indicates a successful or positive action. ×

Info! This alert box indicates a neutral informative change or action. ×

Danger! This alert box indicates a dangerous or potentially negative action. ×