ĐẠI HỌC TÔN ĐỨC THẮNG
TON DUC THANG UNIVERSITY

503073

WEB PROGRAMMING & APPLICATIONS

LECTURE 06 – PHP

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OUTLINE

1. Introduction
2. Environment setup
3. PHP Basics
4. PHP Superglobals
5. File inclusions
6. OOP

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Introduction

- PHP is an acronym for "**P**HP: **H**ypertext **P**reprocessor".
- PHP was first introduce in 1994.
- PHP is a widely-used, open source scripting language.
- PHP scripts are executed on the server.
- PHP is free to download and use.

Introduction

- PHP scripts are executed on the server and the result is sent to the web browser as plain HTML.
- PHP can be integrated with the number of popular databases, including MySQL, PostgreSQL, Oracle, Microsoft SQL Server, Sybase, and so on.
- The current major version of PHP is 7 (2020)

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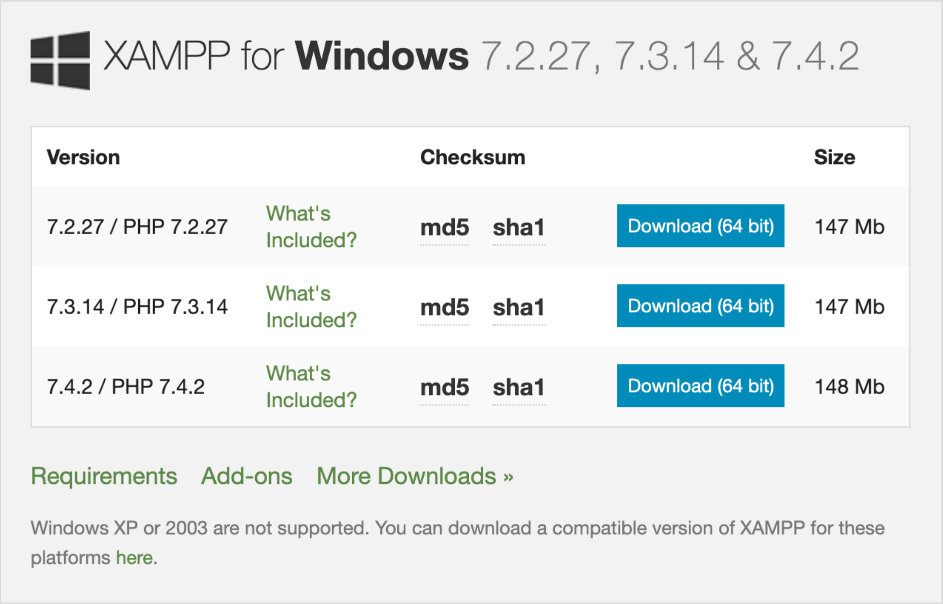
Environment Setup

- To run PHP script, three components need to be installed on your computer system:
  - Web Server: Apache, IIS…
  - PHP Parser
  - Database: MySQL, SQL Server, Oracle…
- XAMPP is a completely free, easy to install Apache distribution containing MariaDB, PHP, and Perl.
- The XAMPP open source package has been set up to be incredibly easy to install and to use.

Install XAMPP on Windows

- https://www.apachefriends.org/download.html



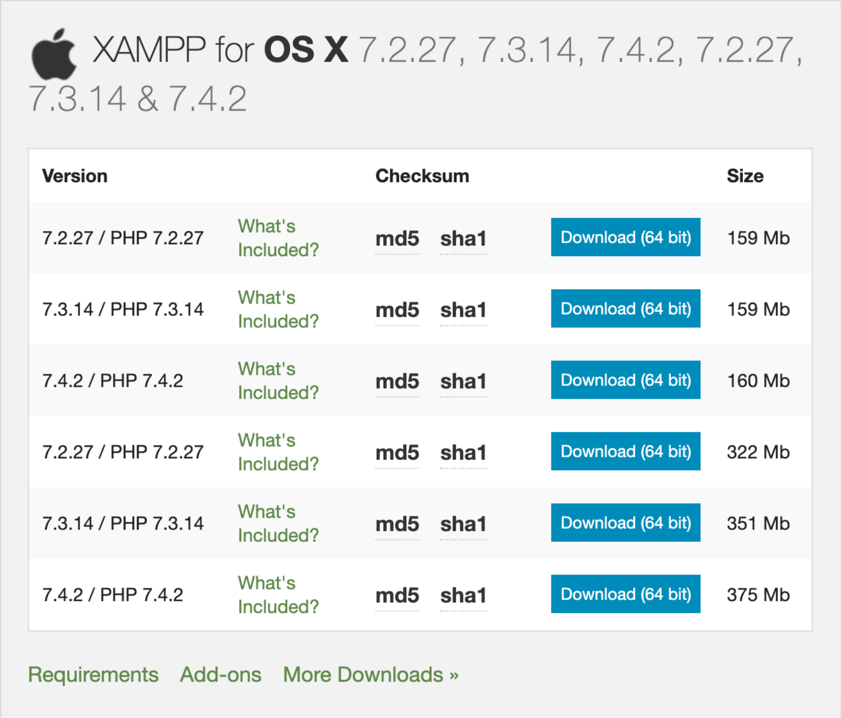
XAMPP for **Windows** 7.2.27, 7.3.14 & 7.4.2

Version		Checksum			Size
7.2.27 / PHP 7.2.27	What's Included?	md5	sha1	Download (64 bit)	147 Mb
7.3.14 / PHP 7.3.14	What's Included?	md5	sha1	Download (64 bit)	147 Mb
7.4.2 / PHP 7.4.2	What's Included?	md5	sha1	Download (64 bit)	148 Mb

Requirements Add-ons More Downloads »

Windows XP or 2003 are not supported. You can download a compatible version of XAMPP for these platforms here.

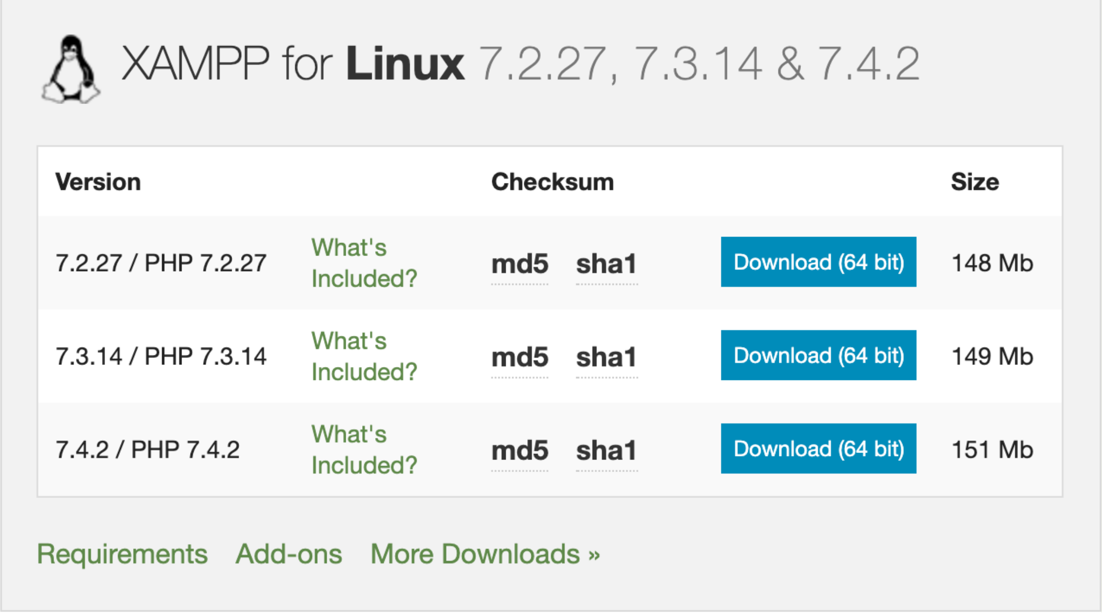
Install XMPP on Mac os



XAMPP for **OS X** 7.2.27, 7.3.14, 7.4.2, 7.2.27, 7.3.14 & 7.4.2

Version		Checksum			Size
7.2.27 / PHP 7.2.27	What's Included?	md5	sha1	Download (64 bit)	159 Mb
7.3.14 / PHP 7.3.14	What's Included?	md5	sha1	Download (64 bit)	159 Mb
7.4.2 / PHP 7.4.2	What's Included?	md5	sha1	Download (64 bit)	160 Mb
7.2.27 / PHP 7.2.27	What's Included?	md5	sha1	Download (64 bit)	322 Mb
7.3.14 / PHP 7.3.14	What's Included?	md5	sha1	Download (64 bit)	351 Mb
7.4.2 / PHP 7.4.2	What's Included?	md5	sha1	Download (64 bit)	375 Mb

Install XMPP on Linux



XAMPP for **Linux** 7.2.27, 7.3.14 & 7.4.2

Version		Checksum			Size
7.2.27 / PHP 7.2.27	What's Included?	md5	sha1	Download (64 bit)	148 Mb
7.3.14 / PHP 7.3.14	What's Included?	md5	sha1	Download (64 bit)	149 Mb
7.4.2 / PHP 7.4.2	What's Included?	md5	sha1	Download (64 bit)	151 Mb

Requirements Add-ons More Downloads »

Accessing Localhost

- File system: <path to xampp>/htdocs
- Browsers:
  - http://localhost
  - http://127.0.0.1 (loopback IP Address)
  - Local IP address
  - Public IP Address (Fort forwarding is required).

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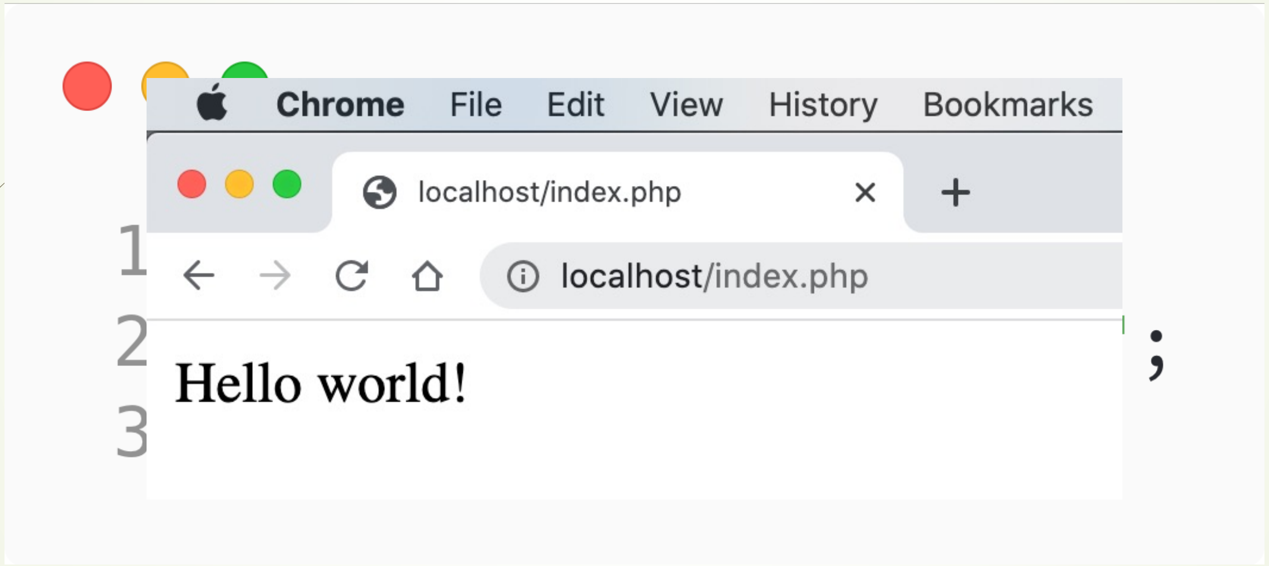
PHP Basic

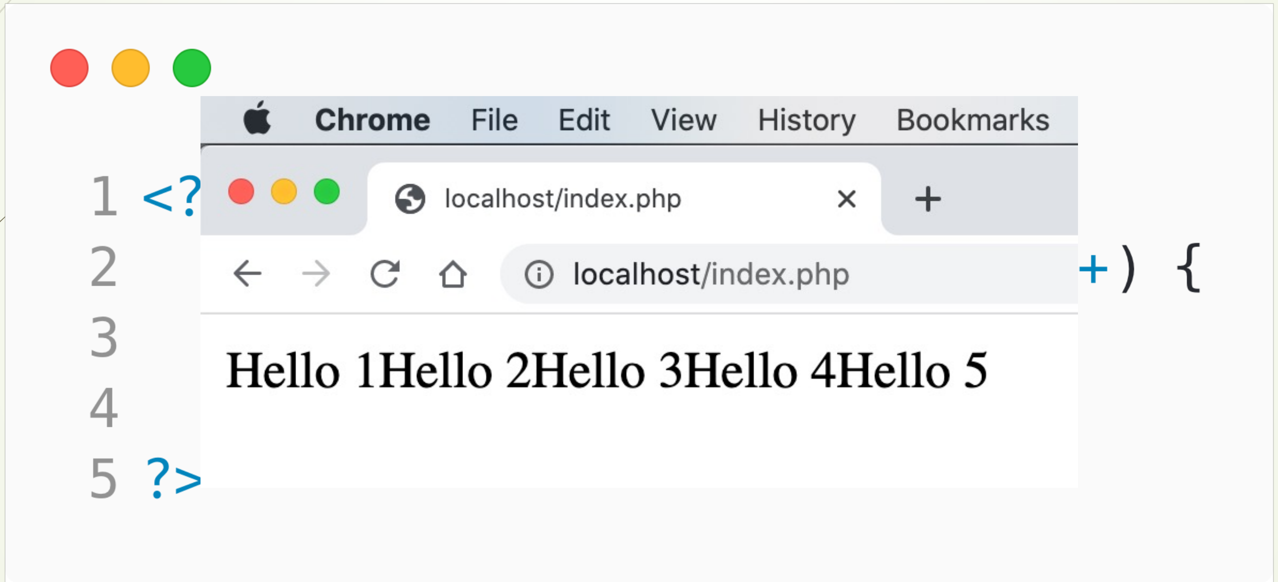
1. Getting started
2. Syntax overview
3. Variables
4. Data types
5. Decision making
6. Loop
7. String
8. Array
9. Function

Getting Started - Hello World Example



Hello world!

Hello World Example 2

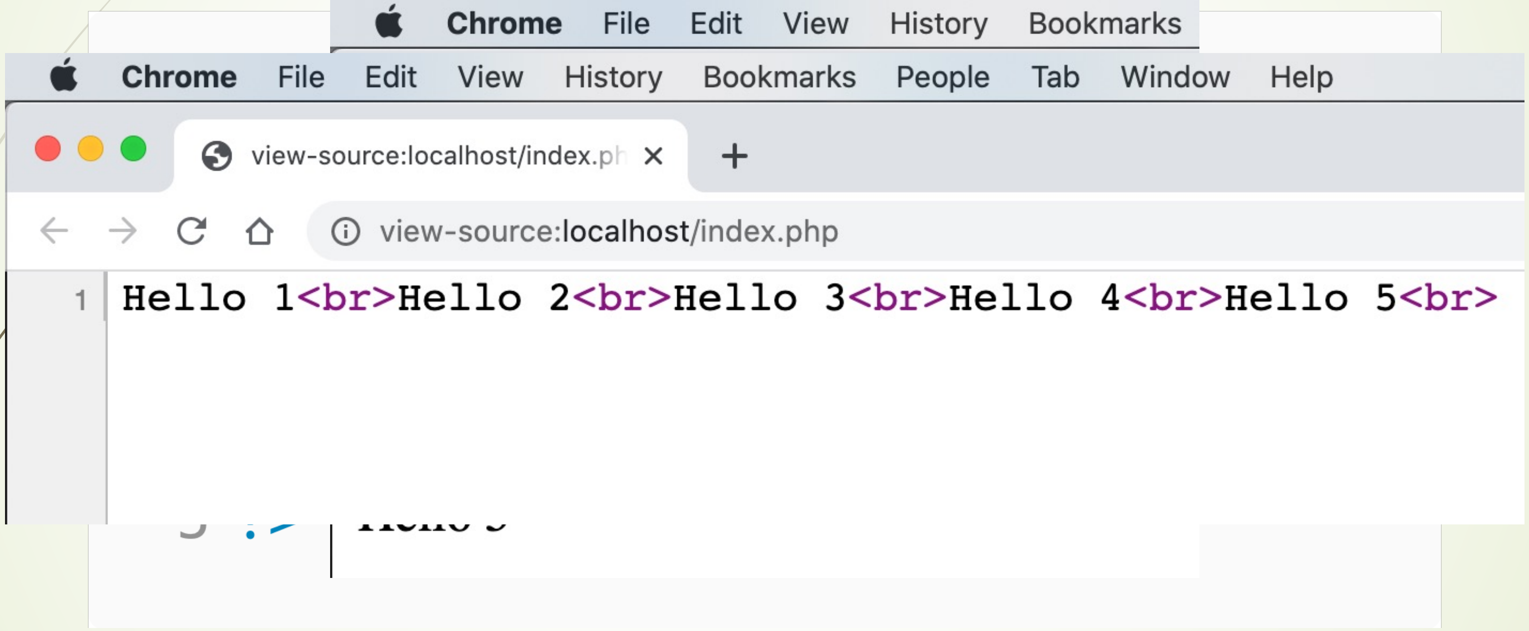


```
<?
                                   +) {


?>
```

```
Hello 1Hello 2Hello 3Hello 4Hello 5
```

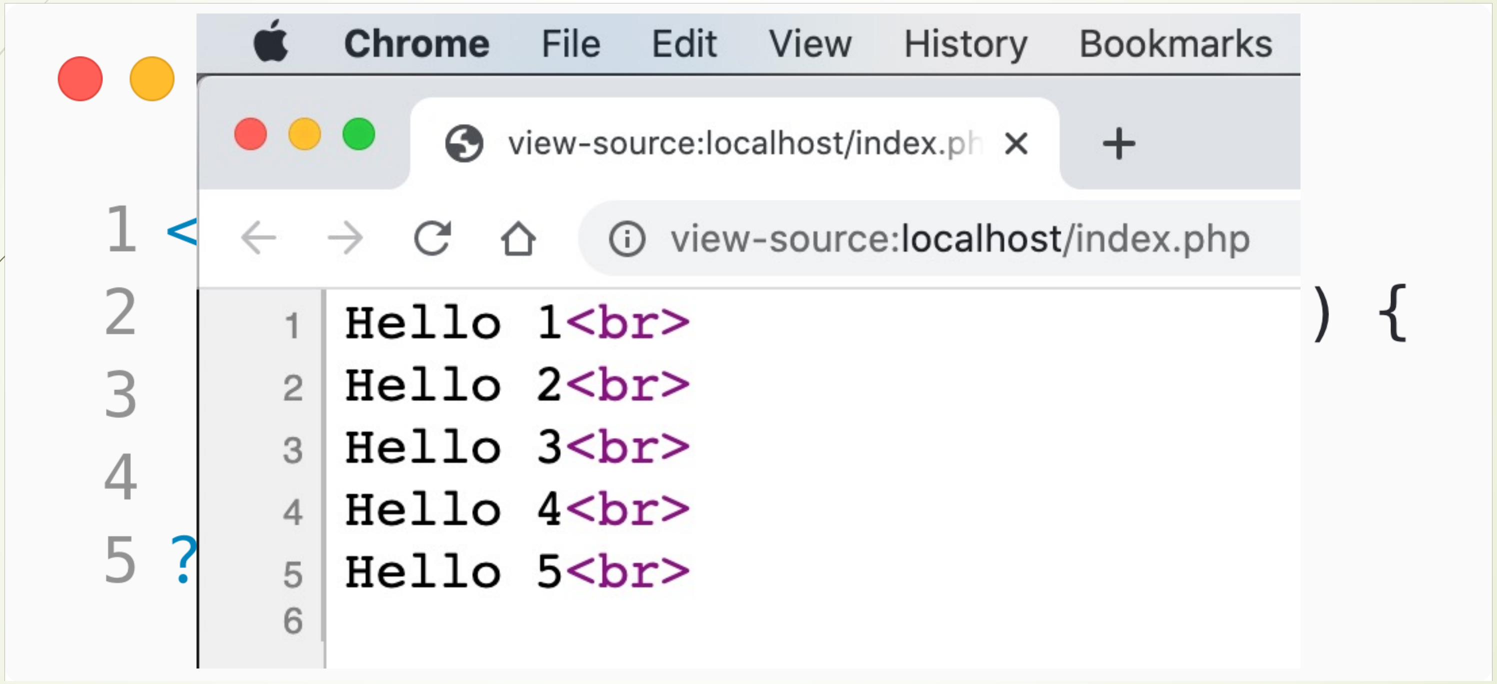
Hello World Example 3



Chrome
File
Edit
View
History
Bookmarks
People
Tab
Window
Help
view-source:localhost/index.ph
view-source:localhost/index.php

```
Hello 1<br>Hello 2<br>Hello 3<br>Hello 4<br>Hello 5<br>
```

Hello World Example 4


Chrome
File
Edit
View
History
Bookmarks
view-source:localhost/index.ph
view-source:localhost/index.php
<
) {
?

```
Hello 1<br>
Hello 2<br>
Hello 3<br>
Hello 4<br>
Hello 5<br>

```

Syntax overview

- Escaping to PHP: differentiate PHP code from other elements in the page.
  - Canonical PHP tags: <?php …. ?>
  - Short-open : <? … ?>
- Commenting PHP Code:
  - Single-line comments: # This is a comment
  - Multi-lines comments: */* This is a comment with multiline in PHP */*

Variables

- In PHP, a variable starts with the **$** sign, followed by the name of the variable: $age = 30;

  $name = ‘Nguyen Van Tuan’;

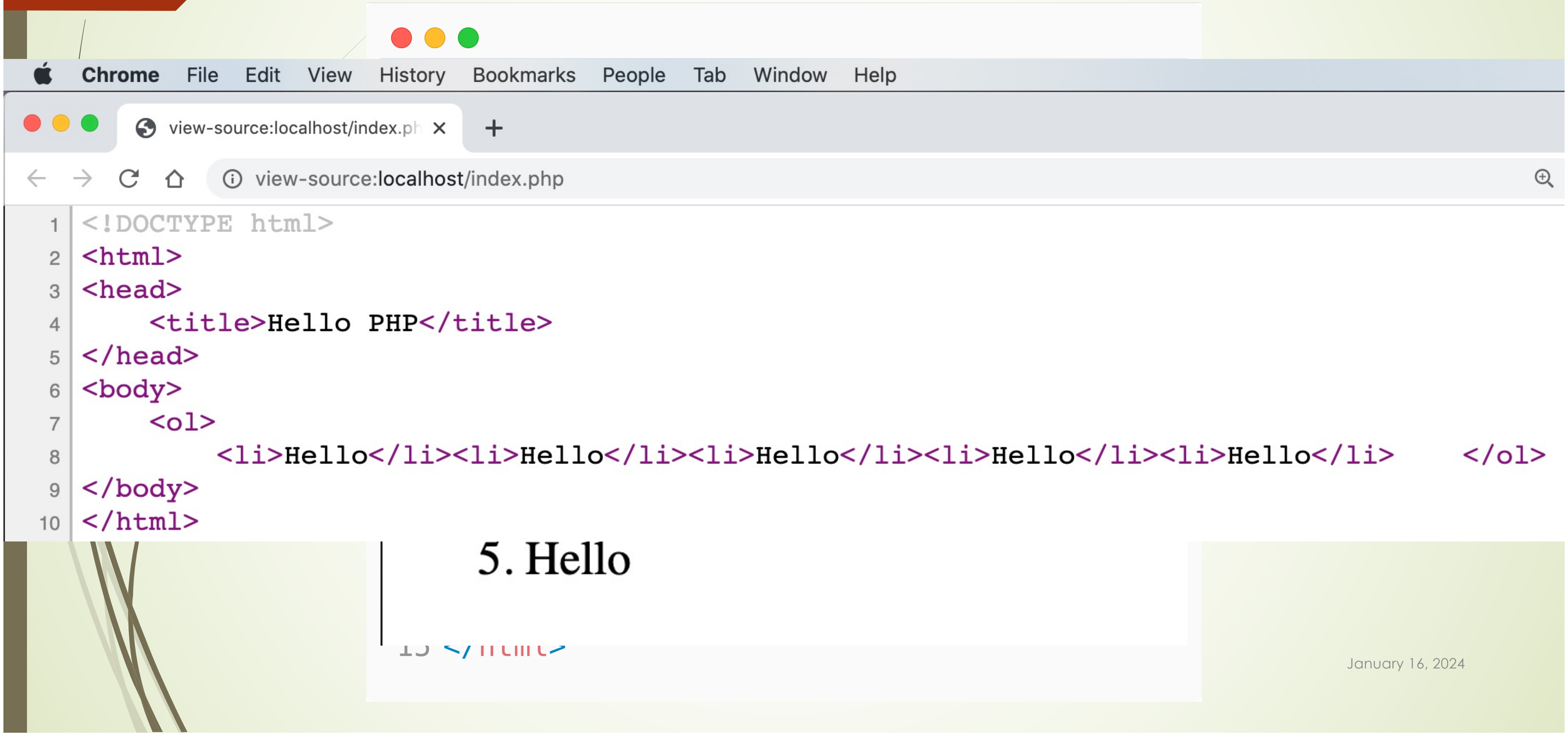
- Unlike other programming languages, PHP has no command for declaring a variable.
- PHP variable names are case-sensitive.
- The PHP echo statement is often used to output data to the screen:

```
$txt = "W3Schools.com";
echo "I love $txt!";
```

Variables

- PHP is a Loosely Typed Language: PHP automatically associates a data type to the variable, depending on its value.
- You can do things like adding a string to an integer without causing an error.
- In PHP 7, type declarations were added.
- PHP has three different variable scopes:
  - local
  - global
  - static

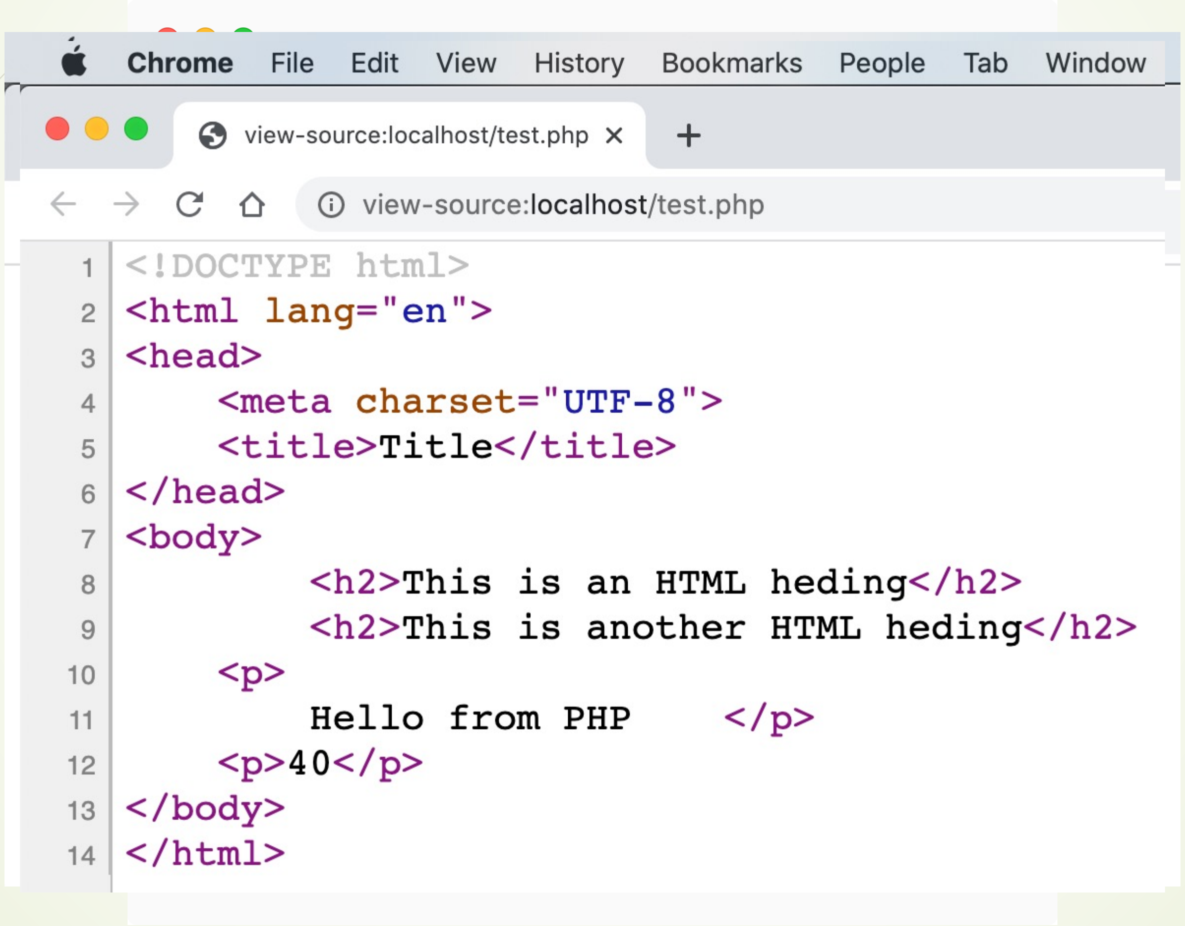
PHP with HTML


Chrome
File
Edit
View
History
Bookmarks
People
Tab
Window
Help
view-source:localhost/index.ph
view-source:localhost/index.php

```
<!DOCTYPE html>
<html>
<head>
    <title>Hello PHP</title>
</head>
<body>
    <ol>
        <li>Hello</li><li>Hello</li><li>Hello</li><li>Hello</li><li>Hello</li>    </ol>
</body>
</html>
```

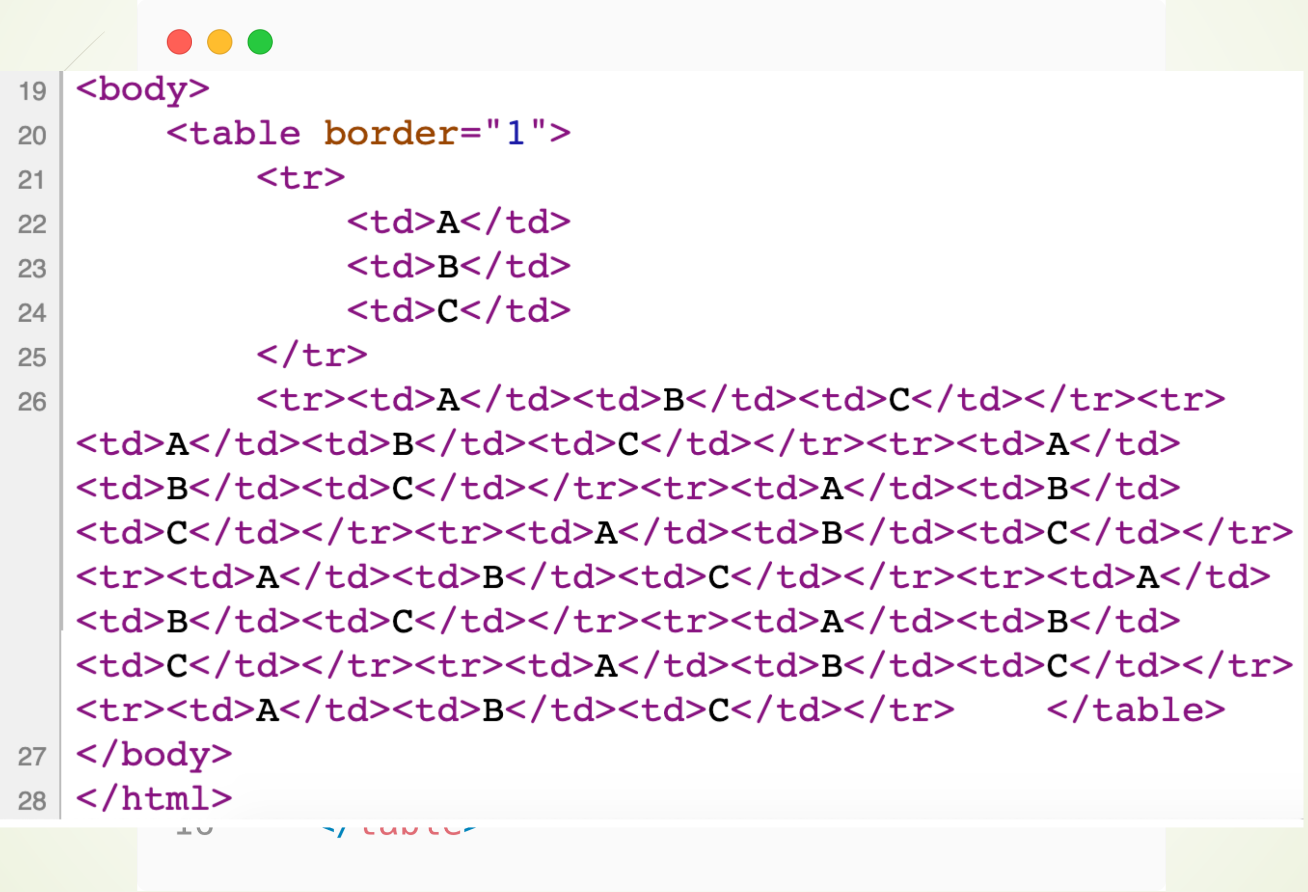
```
5. Hello
```

Multiple PHP blocks


Chrome
File
Edit
View
History
Bookmarks
People
Tab
Window
view-source:localhost/test.php
view-source:localhost/test.php

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Title</title>
</head>
<body>
        <h2>This is an HTML heding</h2>
        <h2>This is another HTML heding</h2>
    <p>
        Hello from PHP    </p>
    <p>40</p>
</body>
</html>
```

PHP Output HTML



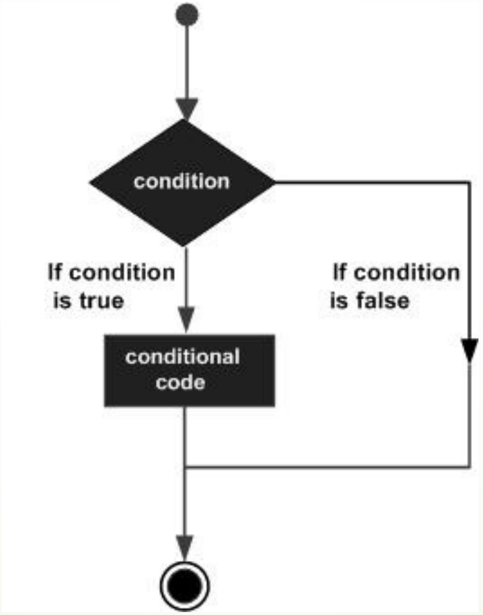
```
<body>
    <table border="1">
        <tr>
            <td>A</td>
            <td>B</td>
            <td>C</td>
        </tr>
        <tr><td>A</td><td>B</td><td>C</td></tr><tr>
<td>A</td><td>B</td><td>C</td></tr><tr><td>A</td>
<td>B</td><td>C</td></tr><tr><td>A</td><td>B</td>
<td>C</td></tr><tr><td>A</td><td>B</td><td>C</td></tr>
<tr><td>A</td><td>B</td><td>C</td></tr><tr><td>A</td>
<td>B</td><td>C</td></tr><tr><td>A</td><td>B</td>
<td>C</td></tr><tr><td>A</td><td>B</td><td>C</td></tr>
<tr><td>A</td><td>B</td><td>C</td></tr>    </table>
</body>
</html>
```

Data Types

- PHP supports the following data types:
  - String
  - Integer
  - Float (floating point numbers - also called double)
  - Boolean
  - Array
  - Object
  - NULL
  - Resource

Decision Making

- The if, elseif ...else and switch statements are used to take decision based on the different condition.

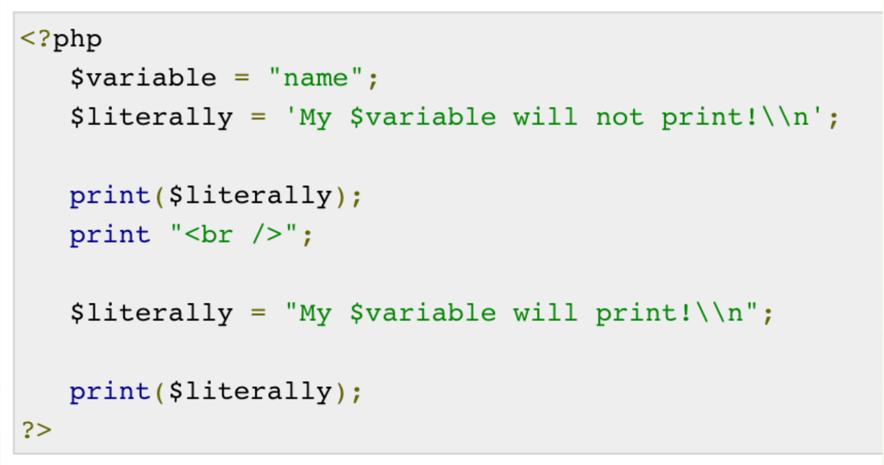


Loop

- PHP supports following four loop types:
  - For
  - While
  - Do-while

PHP String

- Single quoted strings are treated almost literally.
- Doubly quoted strings replace variables with their values as well as specially interpreting certain character sequences.



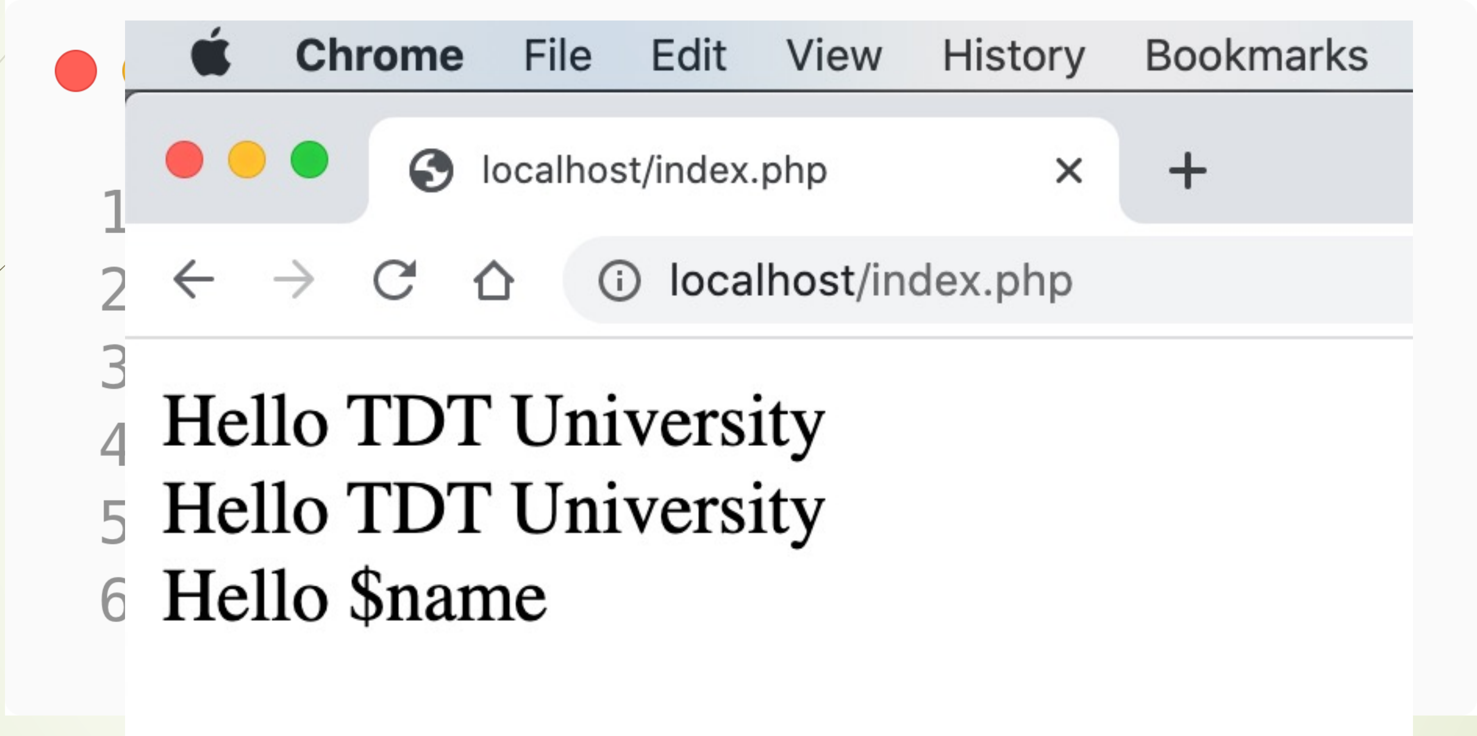
```
<?php
   $variable = "name";
   $literally = 'My $variable will not print!\\n';

   print($literally);
   print "<br />";

   $literally = "My $variable will print!\\n";

   print($literally);
?>
```

PHP String



```
Hello TDT University
Hello TDT University
Hello $name
```

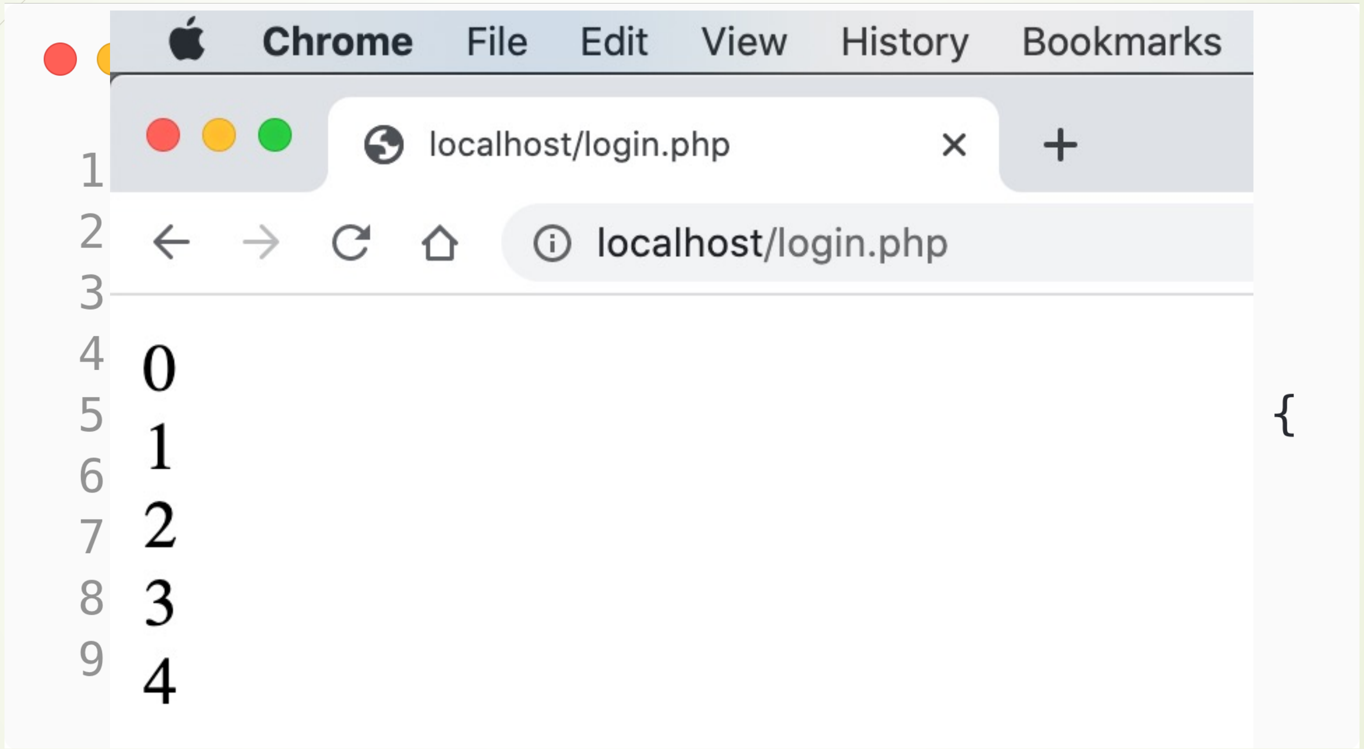
String Manipulation

- To concatenate two string variables together, use the dot (.) operator.
- The strlen() function is used to find the length of a string.
- The strpos() function is used to search for a string or character within a string.
- Visit this link for more string manipulation functions: https://www.php.net/manual/en/ref.strings.php

PHP Array

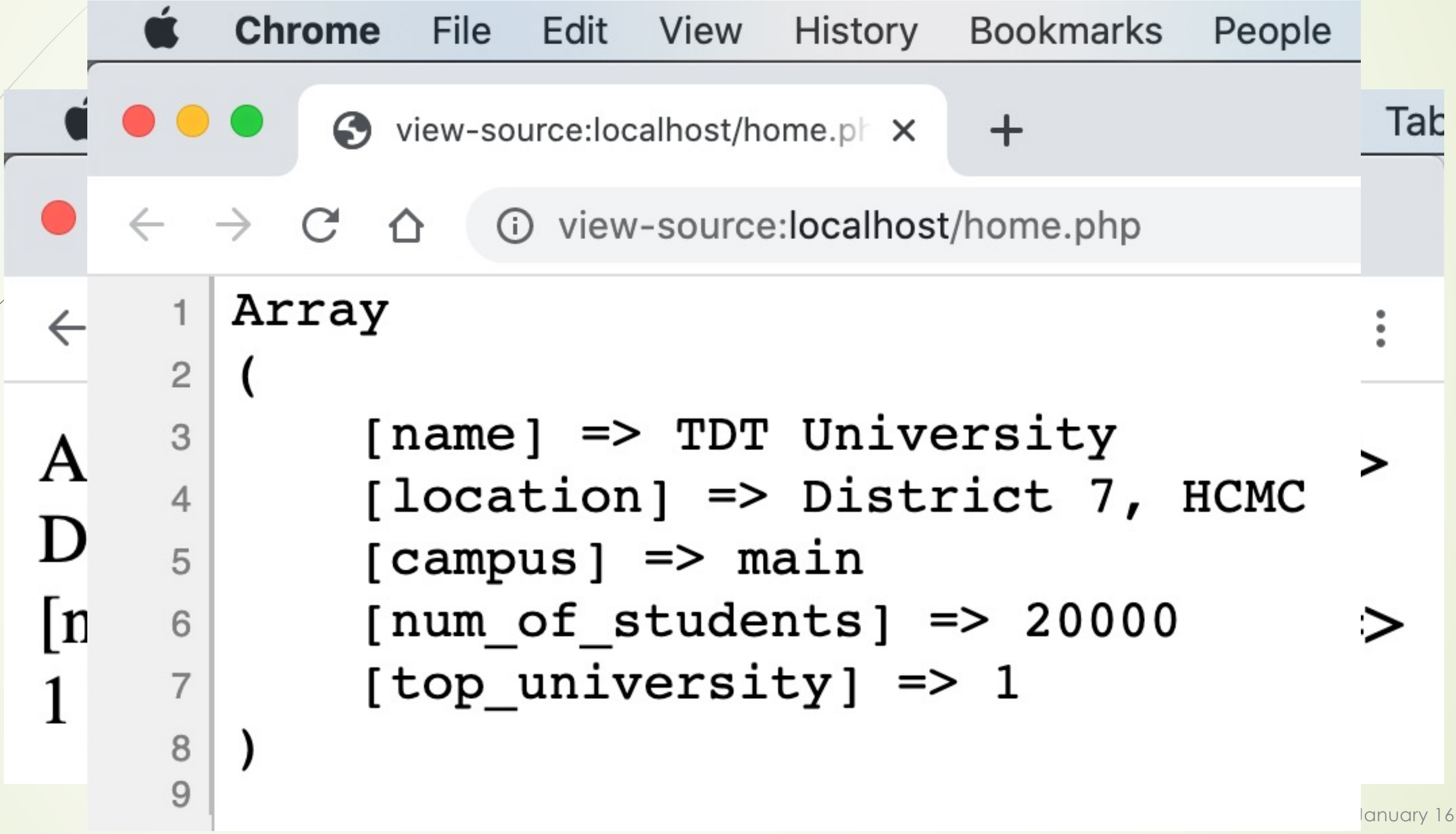
- There are three different kind of arrays:
  - Numeric array – An array with a numeric index. Values are stored and accessed in linear fashion.
  - Associative array – An array with strings as index. This stores element values in association with key values rather than in a strict linear index order.
  - Multidimensional array – An array containing one or more arrays and values are accessed using multiple indices

PHP Numeric Array



```
0
1
2
3
4
```

PHP Associative Array



```
Array
(
    [name] => TDT University
    [location] => District 7, HCMC
    [campus] => main
    [num_of_students] => 20000
    [top_university] => 1
)
```

PHP Function

- PHP functions are similar to other programming languages.
- PHP supports more than 1000 of built-in library functions.
- Please refer to PHP Function Reference for a complete set of useful functions: https://www.tutorialspoint.com/php/php_function_reference.htm

PHP Function

- Creating PHP Function
- PHP Functions with Parameters
- Passing Arguments by Reference
- PHP Functions returning value
- Setting Default Values for Function Parameters
- Dynamic Function Calls

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PHP Superglobals

- Superglobals were introduced in PHP 4.1.0, and are built-in variables that are always available in all scopes.
- The PHP superglobal variables are:
  - $GLOBALS
  - $_SERVER
  - $_REQUEST
  - $_POST
  - $_GET
  - $_FILES
  - $_ENV
  - $_COOKIE
  - $_SESSION

PHP Magic Constants

- **__FILE__**: returns full path and name of the PHP file that's being executed
- **__DIR__**: returns the directory of the file
- **__LINE__**: returns the current line number of the file
- **__FUNCTION__**: returns the name of the current function
- **__CLASS__**: returns the name of the current class
- **__METHOD__**: returns the name of the current class method
- **__NAMESPACE__**: returns the name of the current namespace

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PHP Inclusions

- You can include the content of a PHP file into another PHP file before the server executes it.
- There are two PHP functions which can be used:
  - include()
  - require()

PHP include() Function

- The include() function takes all the text in a specified file and copies it into the file that uses the include function.
- If there is any problem in loading a file then the include() function generates a warning but the script will continue execution.

PHP require() Function

- The require() function takes all the text in a specified file and copies it into the file that uses the include function.
- If there is any problem in loading a file then the require() function generates a fatal error and halt the execution of the script.

include vs require

- So there is no difference in require() and include() except they handle error conditions.
- It is recommended to use the require() function instead of include()

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OOP In PHP

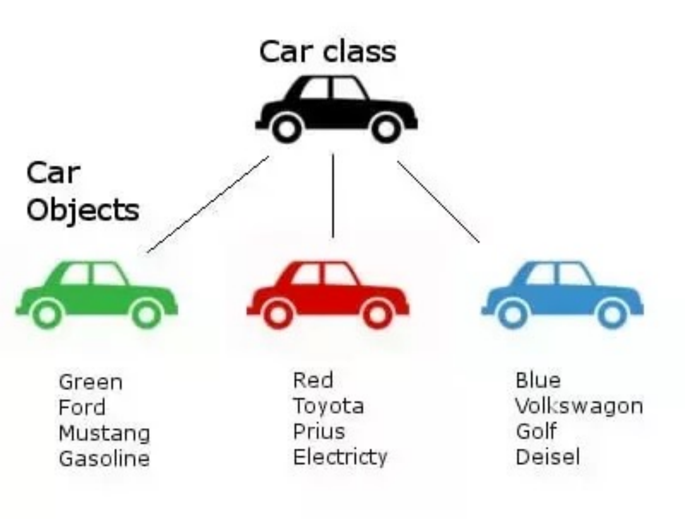
- OOP stands for Object-Oriented Programming.
- From PHP5, you can also write PHP code in an object-oriented style.
- Procedural programming is about writing procedures or functions that perform operations on the data.
- Object-oriented programming is about creating objects that contain both data and functions.

OOP Advantages

- OOP is faster and easier to execute.
- OOP provides a clear structure for the programs.
- OOP helps to keep the PHP code DRY "Don't Repeat Yourself", and makes the code easier to maintain, modify and debug.
- OOP makes it possible to create full reusable applications with less code and shorter development time.

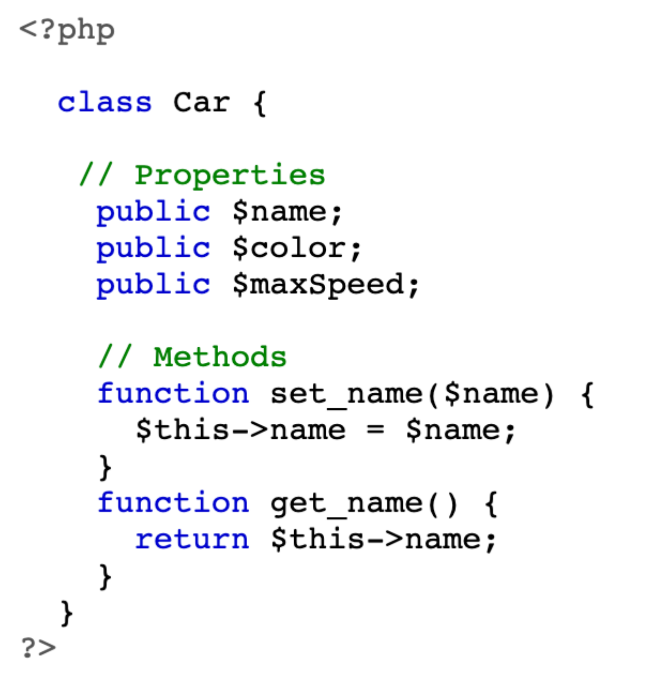
PHP Classes and Objects

- A class is a template for objects, and an object is an instance of class.



Define a Class

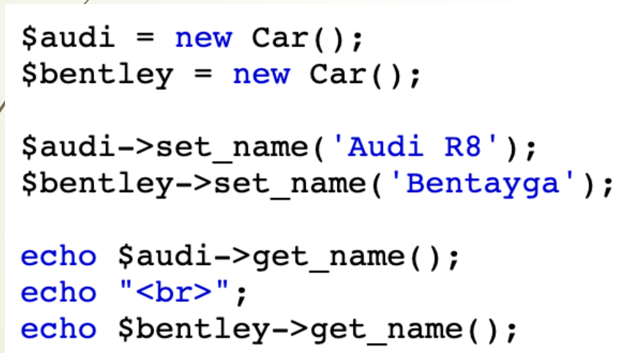
- A class is defined by using the class keyword, All its properties and methods goes inside the 'braces'.



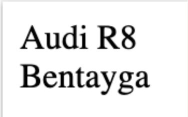
```
<?php

  class Car {

   // Properties
    public $name;
    public $color;
    public $maxSpeed;

    // Methods
    function set_name($name) {
      $this->name = $name;
    }
    function get_name() {
      return $this->name;
    }
  }
?>
```

Define Objects

- We can create multiple objects from a class. Each object has all the properties and methods defined in the class, but they will have different property values.



```
$audi = new Car();
$bentley = new Car();

$audi->set_name('Audi R8');
$bentley->set_name('Bentayga');

echo $audi->get_name();
echo "<br>";
echo $bentley->get_name();
```



```
Audi R8
Bentayga
```

OOP Concepts

- $this keyword
- instanceof
- constructor, destructor
- Access modifier: public, protected, private.
- Inheritance