Web Programming
#4 PHP

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Front-End and Back-End Terms

Front-End and Back-End Terms

The back-ends of websites will differ depending on the needs of the site. Typically, they'll have at least the following components:

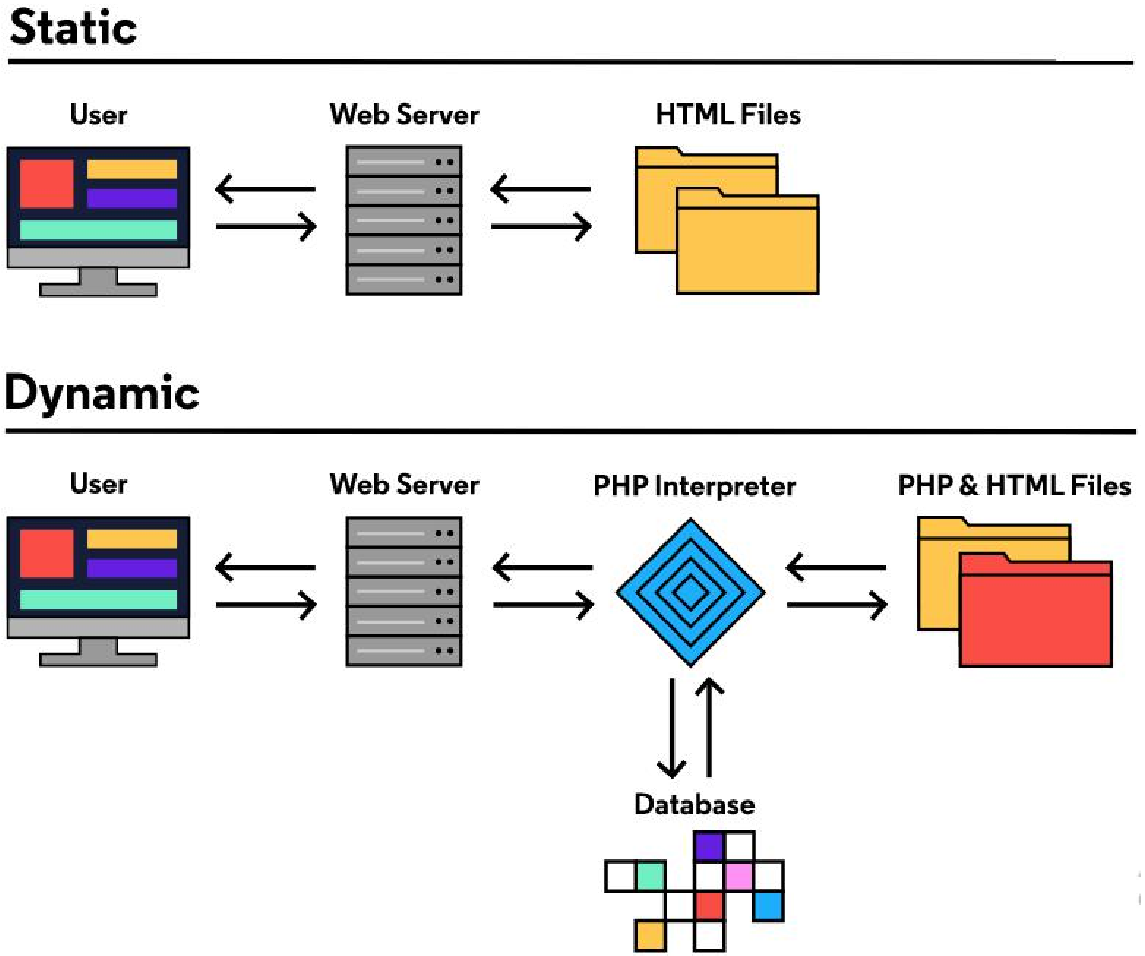
1. **A web server**: a web server is a computer or program which listens for requests from clients and sends back responses. This component is well suited to handling delivery of static content.
2. **An application server**: this is actually often a collection of programming logic which is needed to deliver dynamic content to a client. The application server will often handle other tasks such as site security and interacting with data.
3. **A databas**e: important information like usernames and passwords has to be stored and accessed somewhere. A large web application will often have multiple databases to store all different types of data needed to run the site smoothly.

PHP History

- Personal Home Page (PHP).
- Pertama kali oleh Rasmus Lerdorf tahun 1995
- Awalnya hanya merekam informasi visitor dan menampilkan jumlah pengunjung dari suatu website.

PHP Hypertext Preprocessor

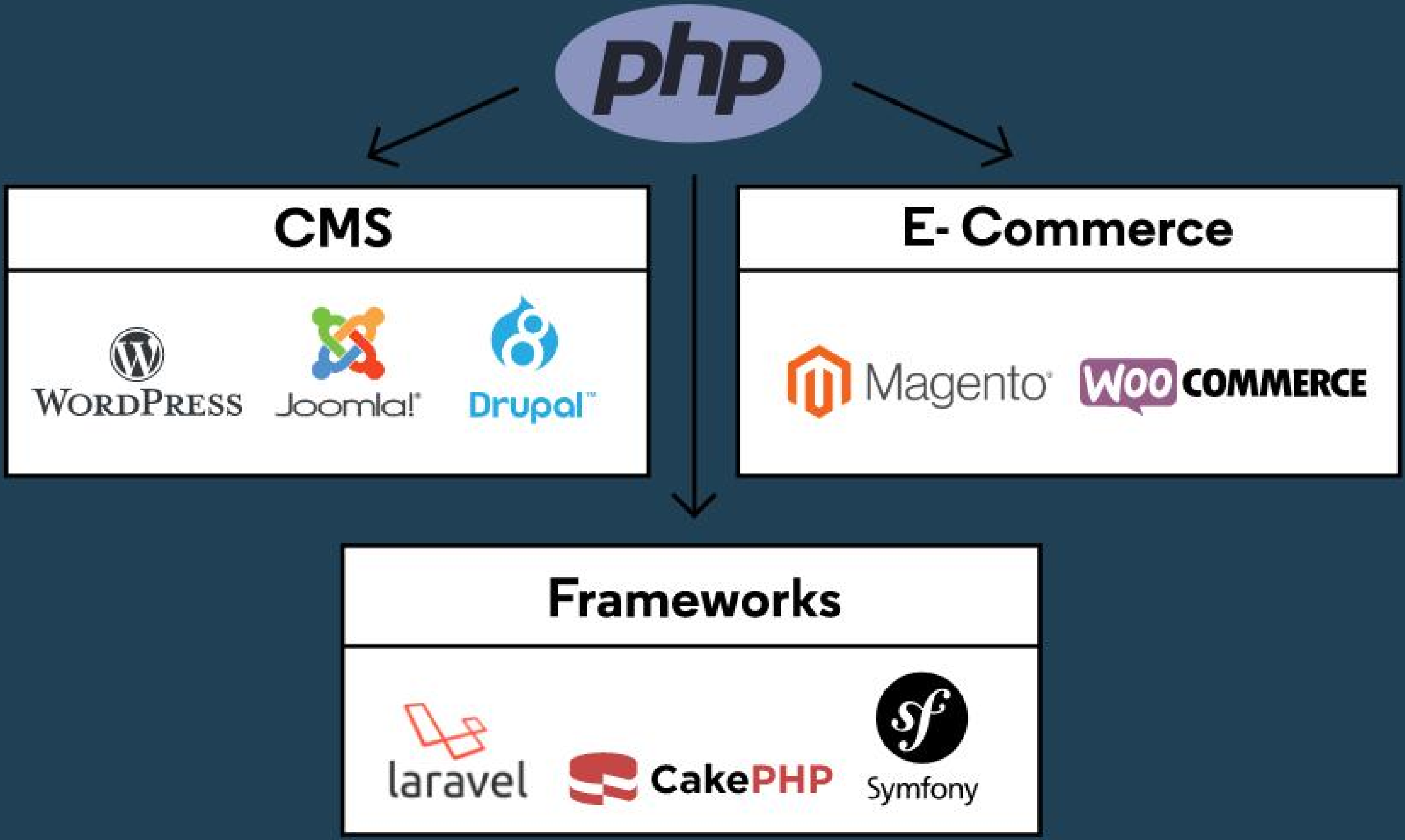
- PHP is often used to build dynamic web pages



PHP Hypertext Preprocessor

- Free
- Easy to Learn
- Cross-platform
- Community support
- DB Support
- On The Fly

PHP Hypertext Preprocessor



CMS

E- Commerce

Frameworks

Struktur Dasar PHP

Sebelum mempelajari PHP, pastikan :

1. Anda telah mengenal dengan cukup baik komputer Anda dan juga bisa mengoperasikannya
2. Anda telah mengerti bagaimana membuka dan menggunakan salah satu atau salah semua dari editor seperti Notepad, Notepad++, VS Code, Eclipse dan yang lainnya.

Struktur Dasar PHP

Sebelum mempelajari PHP, pastikan :

3. Anda telah mengerti bagaimana cara menggunakan Web Browser
4. Anda telah mengenal dan mengerti dengan cukup baik tentang tag-tag HTML dan juga bagaimana menggunakannya.
5. Apache, PHP, dan MySQL (opsional) di komputer yang Anda pakai sudah berjalan sebagaimana mestinya.

Struktur Dasar PHP

Sebelum mempelajari PHP, pastikan :

6. Anda dapat membedakan beberapa hal berikut :
    - Tulisan **nama**, **Nama** dan **NAMA**
    - Koma (,), titik-koma (;) dan titik-dua (:)
    - Kutip-tunggal (‘) dan kutip-ganda (“)
    - Tulisan **namamhs**, **nama_mhs** dan **nama mhs**

Sintaks PHP

Harus ditulis di antara tag :

<?php dan **?>**

<script language=”php”> dan **</script>**

<? dan **?>**

<% dan **%>**

Setiap satu statement (perintah) biasanya diakhiri dengan titik-koma (;)

Sintaks PHP

CASE SENSITIVE untuk nama identifier yang dibuat oleh user (berupa variable, konstanta, fungsi dll), namun **TIDAK CASE SENSITIVE** untuk identifier built-in dari PHP.

- $nama ≠$Nama ≠$NAMA
- hitungLuas() ≠HitungLuas()
- echo = ECHO
- while = WHILE

PHP PSR

PHP Standard Recommendations

- PSR-0 > PSR-4 (Autoloading)
- PSR-1 (Basic Coding Style)
- PSR-2 > PSR-12 (Extended Coding Style)

Benefit :

Developer lain dapat dengan mudah membaca dan bekerja dengan kode Anda

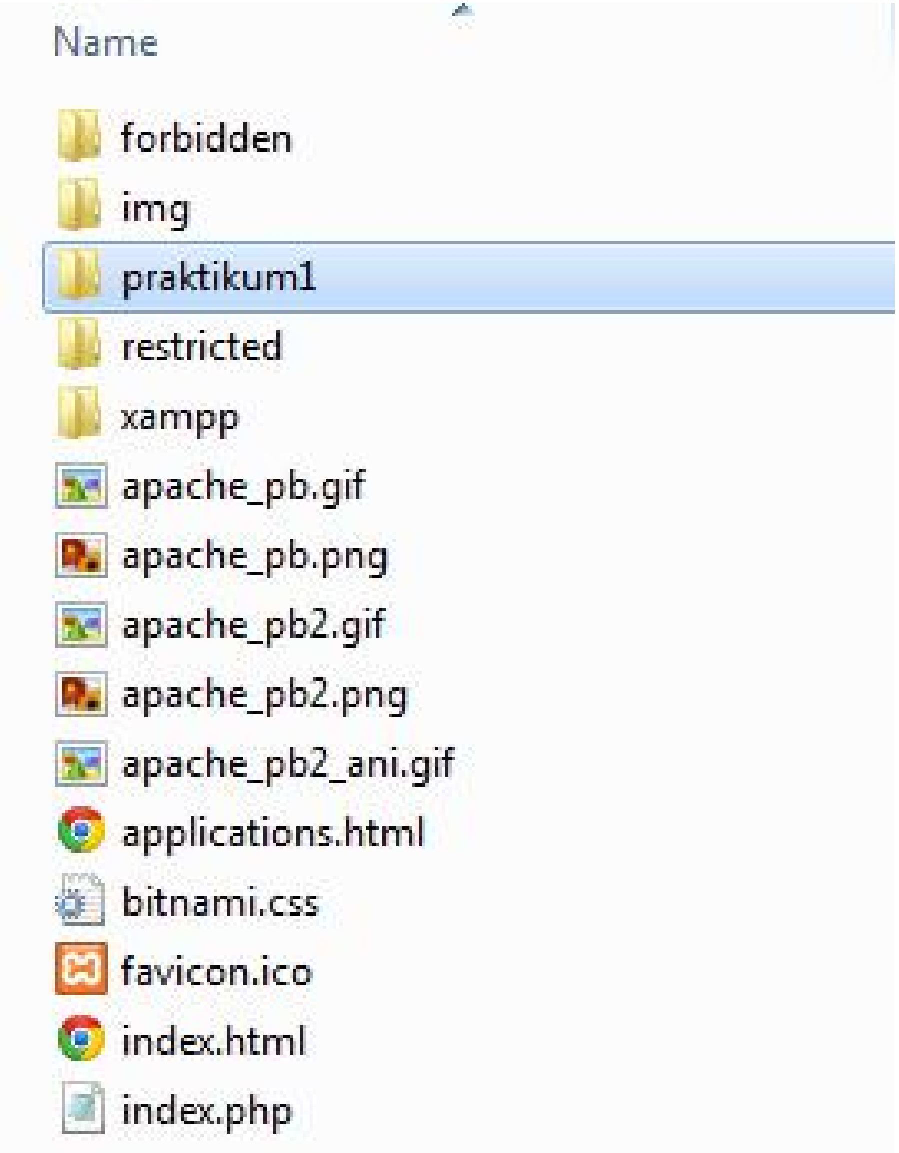
Our First PSR

- Files MUST use only <?php and ?> tags
- Constants MUST be declared in all upper case with underscore separators
  - const DATE_APPROVED
- Variables MUST be declared in all lower case with underscore separators
  - $date_approved
- Code MUST use an indent of 4 spaces for each indent level, and MUST NOT use tabs for indenting.

Memulai PHP

1. Jalankan XAMPP. Klik “Start” pada modul Apache.
2. Cari direktori (folder) instalasi XAMPP
3. Temukan direktori **“htdocs”**
4. Buat direktori untuk praktikum hari ini

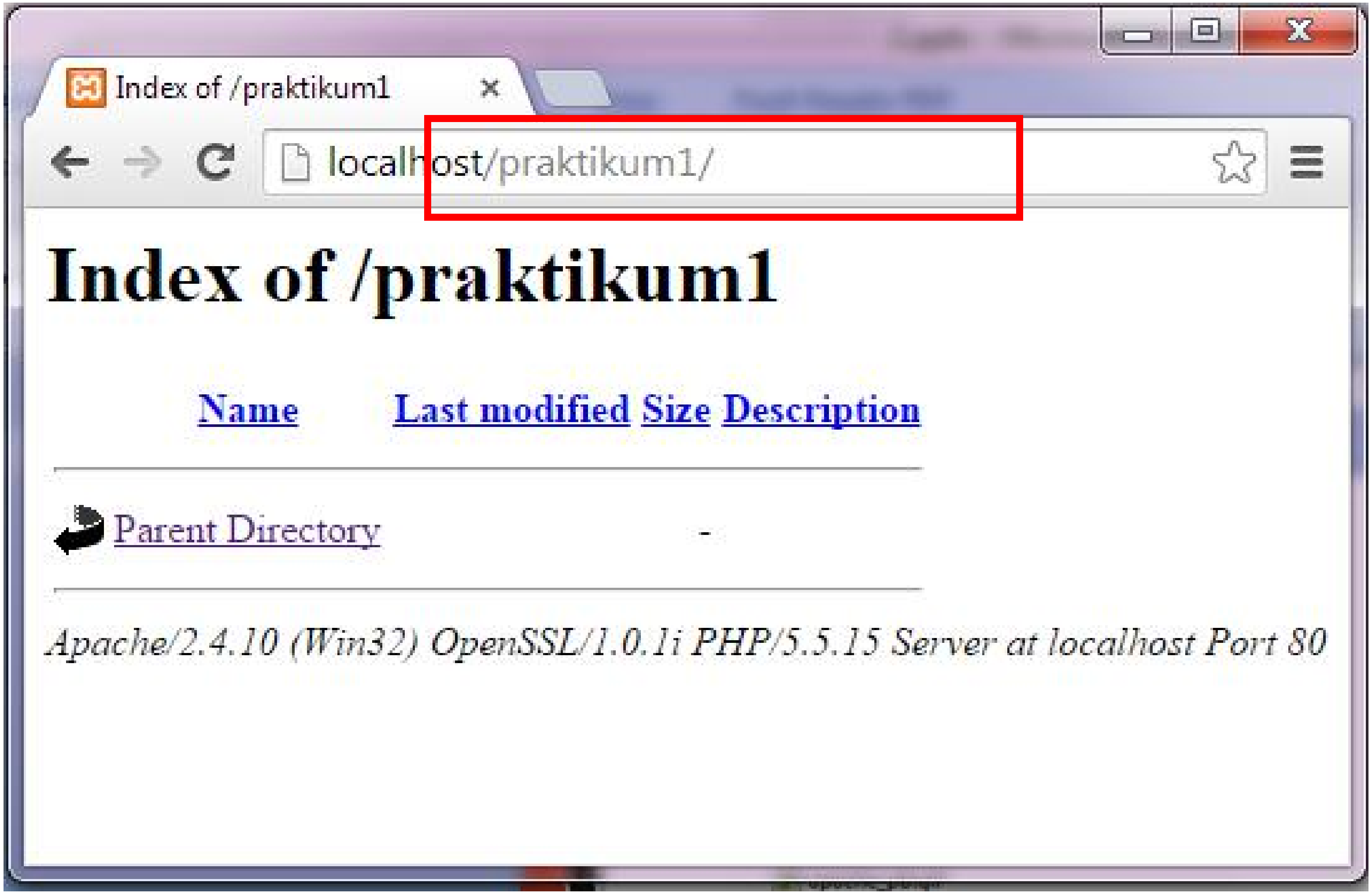
Memulai PHP



Name

- forbidden
- img
- praktikum1
- restricted
- xampp
- apache_pb.gif
- apache_pb.png
- apache_pb2.gif
- apache_pb2.png
- apache_pb2_ani.gif
- applications.html
- bitnami.css
- favicon.ico
- index.html
- index.php

Memulai PHP



Index of /praktikum1

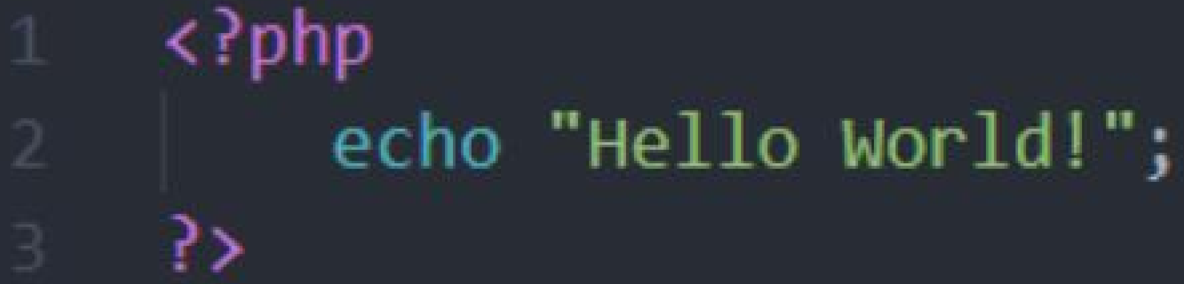
Name Last modified Size Description

Parent Directory -

Apache/2.4.10 (Win32) OpenSSL/1.0.1i PHP/5.5.15 Server at localhost Port 80

Memulai PHP

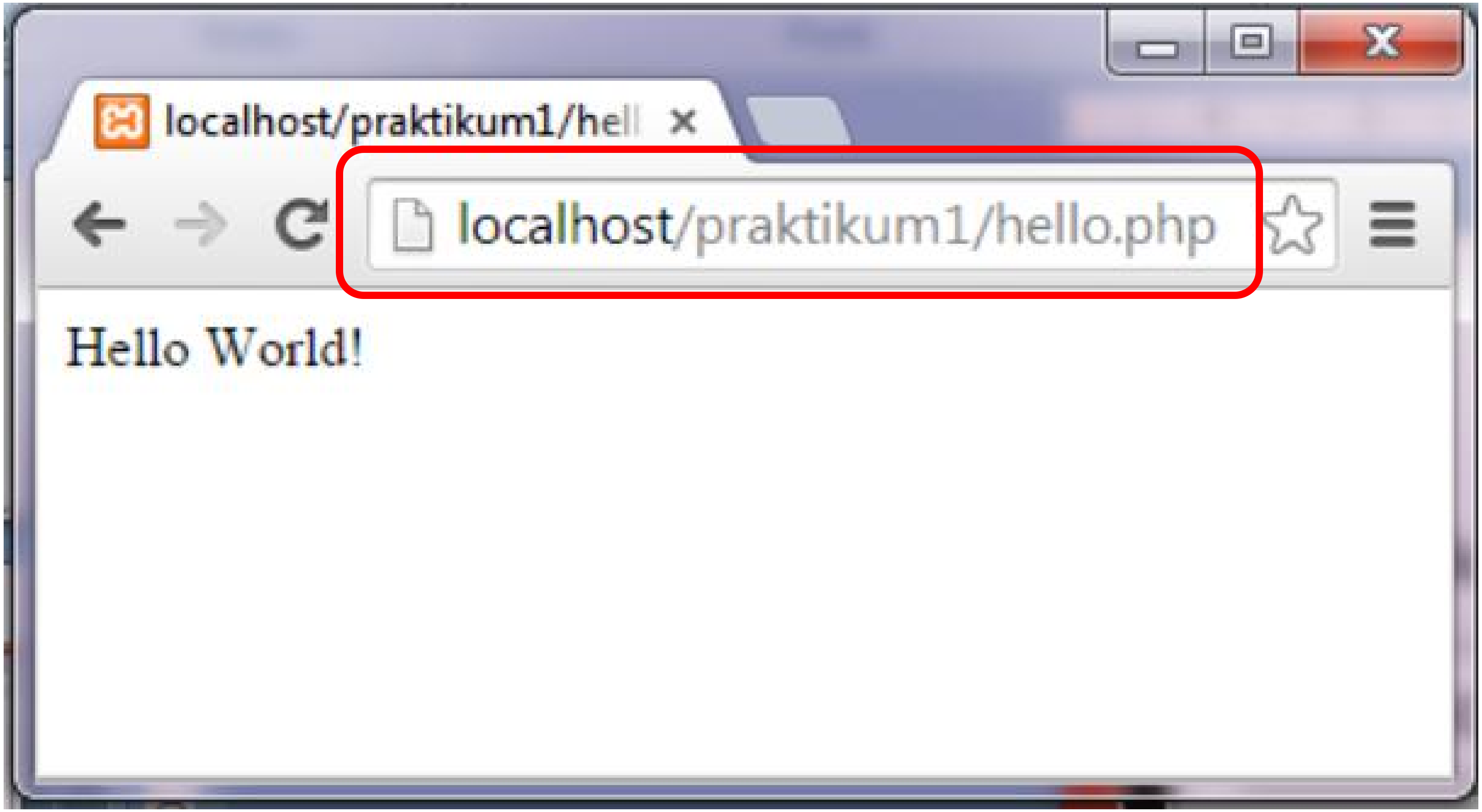
- Buat file baru pada direktori praktikum1
- Beri nama **“hello.php”**
- Tuliskan kode berikut :



```php
<?php
    echo "Hello World!";
?>
```

Memulai PHP

- Buka browser dan ketikkan alamat

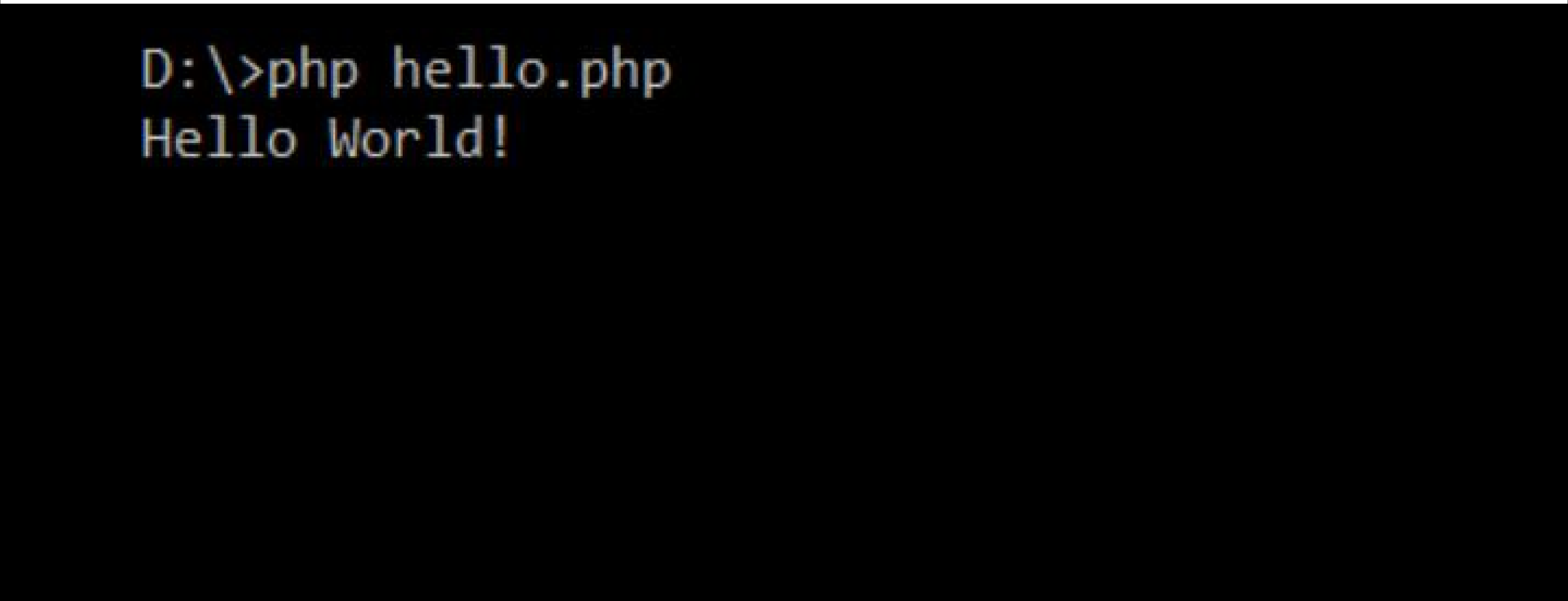


localhost/praktikum1/hello.php

Hello World!

Jalankan PHP Dengan CLI

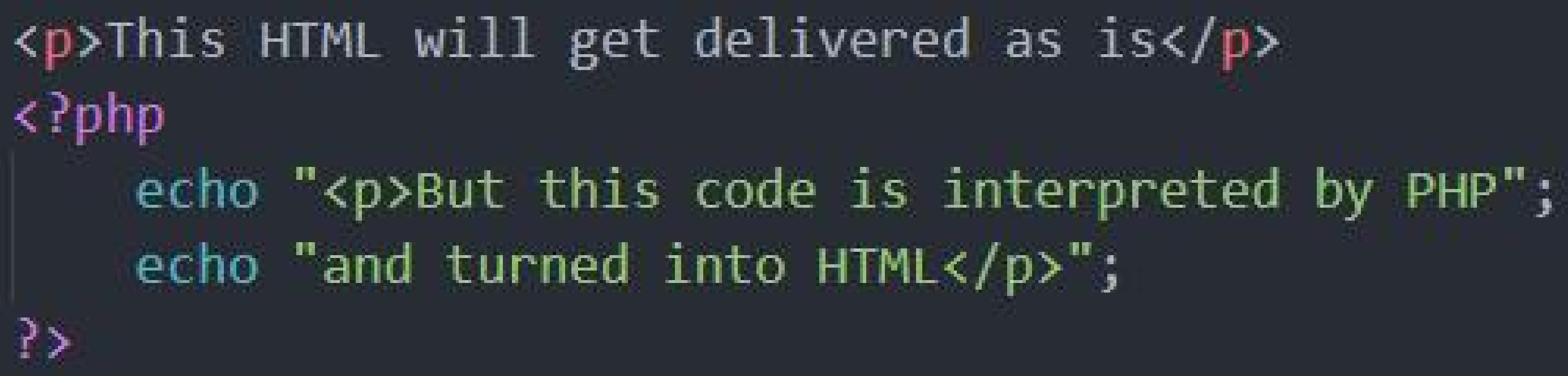
- PHP juga dapat dijalankan sebagai program CLI.
- Di Windows bisa kita gunakan Command Prompt
- Untuk Linux dan Mac menggunakan Terminal



```
D:\>php hello.php
Hello World!
```

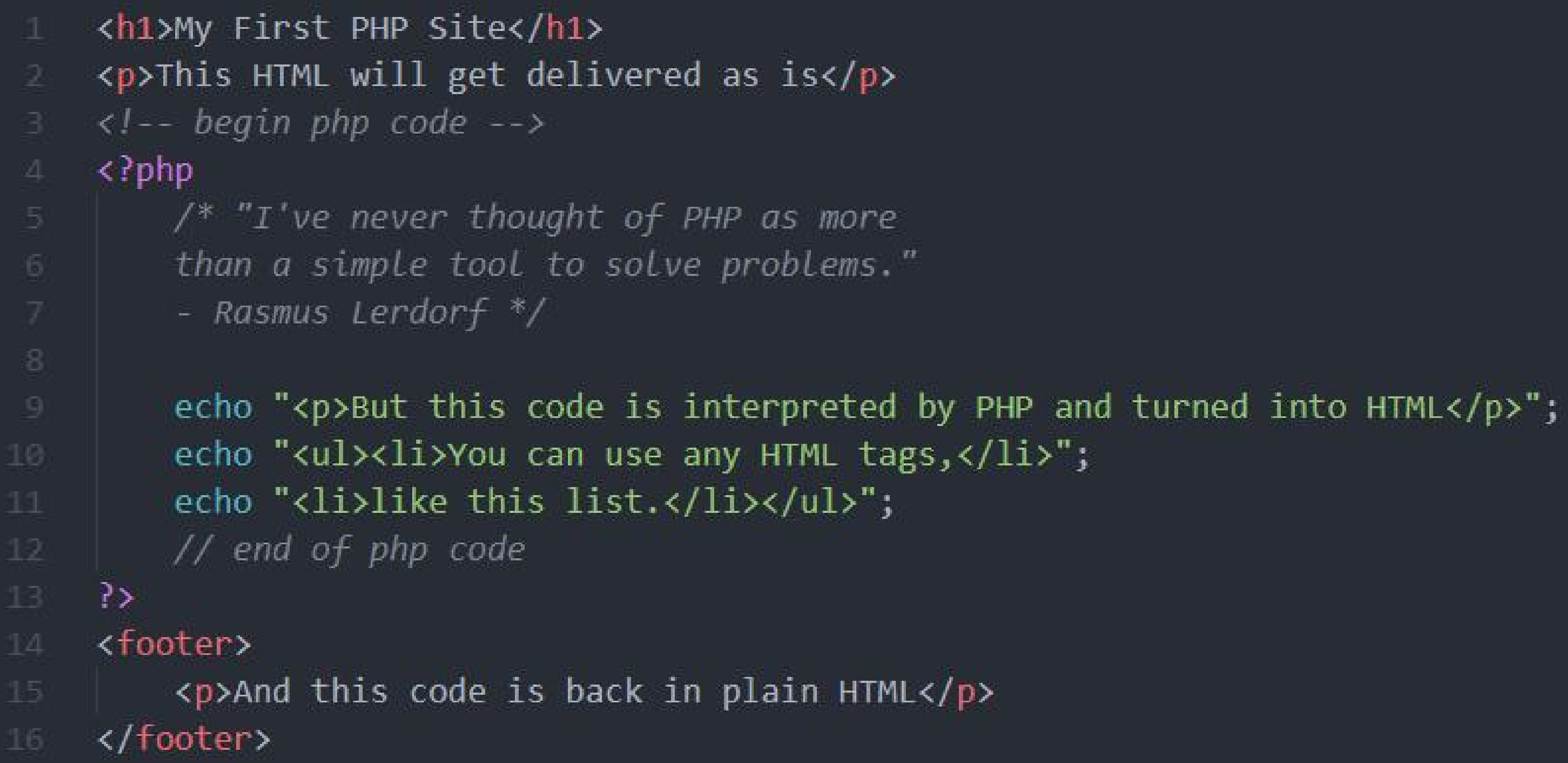
PHP and HTML

In order to create this dynamic behavior, PHP was designed to work closely with HTML. PHP can be used directly in-line with an HTML document.



```
<p>This HTML will get delivered as is</p>
<?php
    echo "<p>But this code is interpreted by PHP";
    echo "and turned into HTML</p>";
?>
```

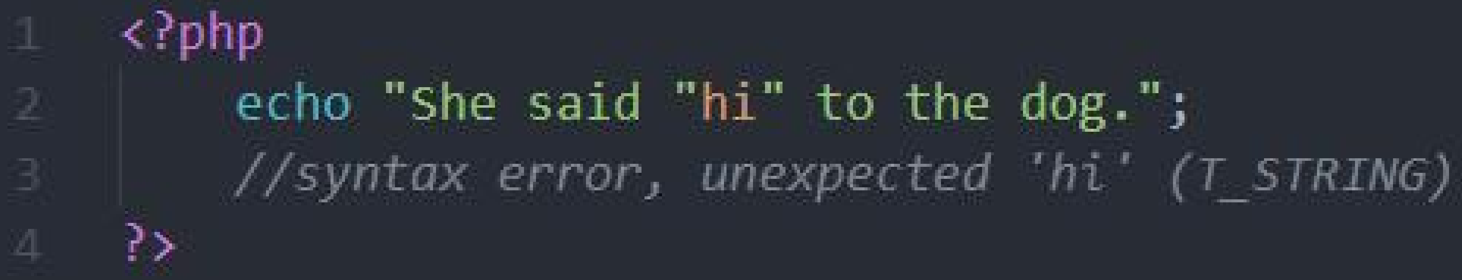
PHP and HTML - Exercise



```
<h1>My First PHP Site</h1>
<p>This HTML will get delivered as is</p>
<!-- begin php code -->
<?php
    /* "I've never thought of PHP as more
    than a simple tool to solve problems."
    - Rasmus Lerdorf */

    echo "<p>But this code is interpreted by PHP and turned into HTML</p>";
    echo "<ul><li>You can use any HTML tags,</li>";
    echo "<li>like this list.</li></ul>";
    // end of php code
?>
<footer>
    <p>And this code is back in plain HTML</p>
</footer>
```

PHP Strings - Escape Sequences

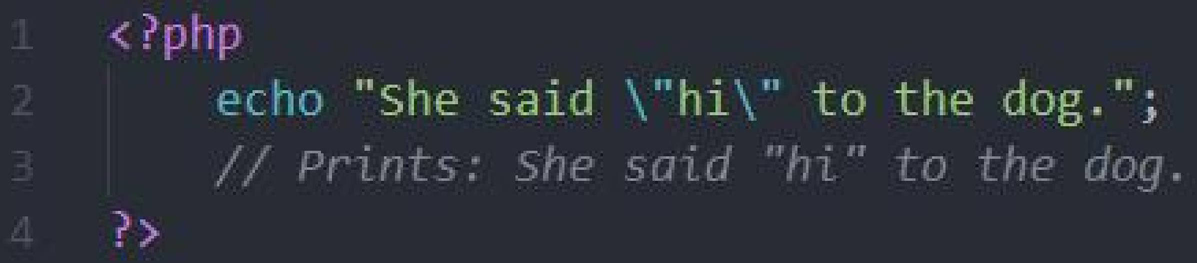
- How do we include quotation marks inside a string?
- Consider the following string: "She said "hi" to the dog."



```
<?php
    echo "She said "hi" to the dog.";
    //syntax error, unexpected 'hi' (T_STRING)
?>
```

✗

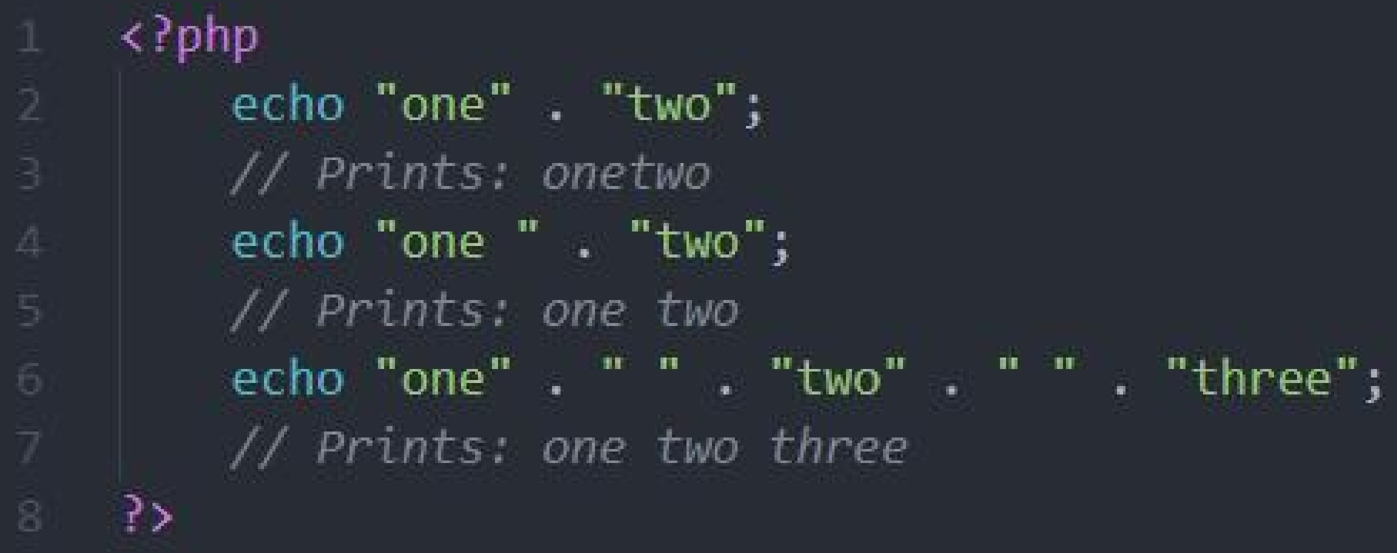
✓



```
<?php
    echo "She said \"hi\" to the dog.";
    // Prints: She said "hi" to the dog.
?>
```

PHP Strings - Concatenation

- It can be useful to combine two strings together. This process is called string concatenation, and we can use the concatenation operator (.) to do this.



```php
<?php
    echo "one" . "two";
    // Prints: onetwo
    echo "one " . "two";
    // Prints: one two
    echo "one" . " " . "two" . " " . "three";
    // Prints: one two three
?>
```

Variabel

- Digunakan untuk menyimpan sebuah value, data atau informasi
- Nama variabel diawali dengan tanda $
- Panjang tidak terbatas
- Setelah tanda $ diawali oleh huruf atau under-score(_). Karakter berikutnya bisa terdiri dari huruf, angka, dan karakter tertentu yang diperbolehkan (karakter ASCII dari 127 – 255)

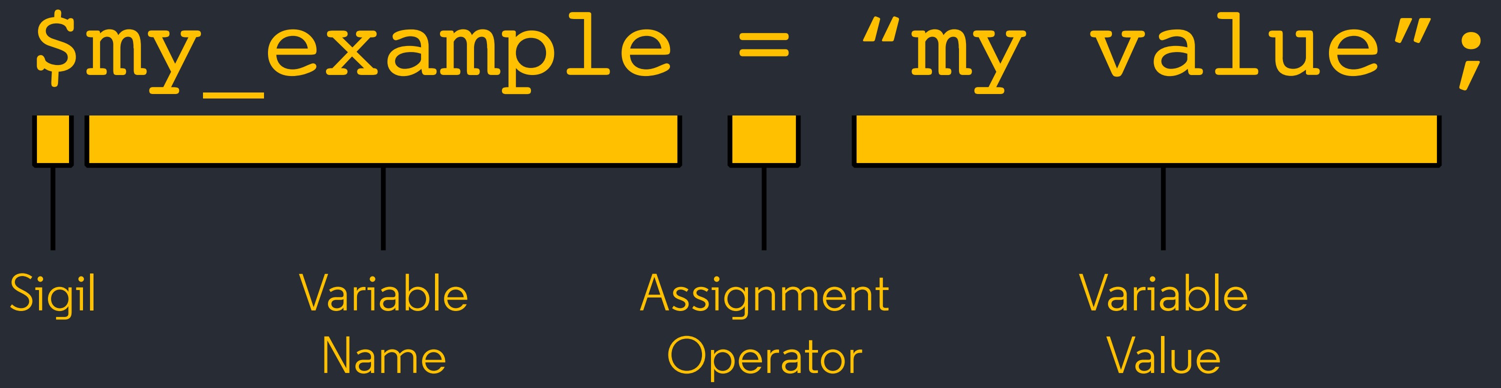
Variabel

- Bersifat case-sensitive.
- Tidak perlu dideklarasikan.
- Tidak boleh mengandung spasi.
- Contoh :

  - $_name
  - $first_name
  - $name3
  - $name_3

  - $3name
  - $name?
  - $first+name
  - $first.name
  - $first name

Creating Variables



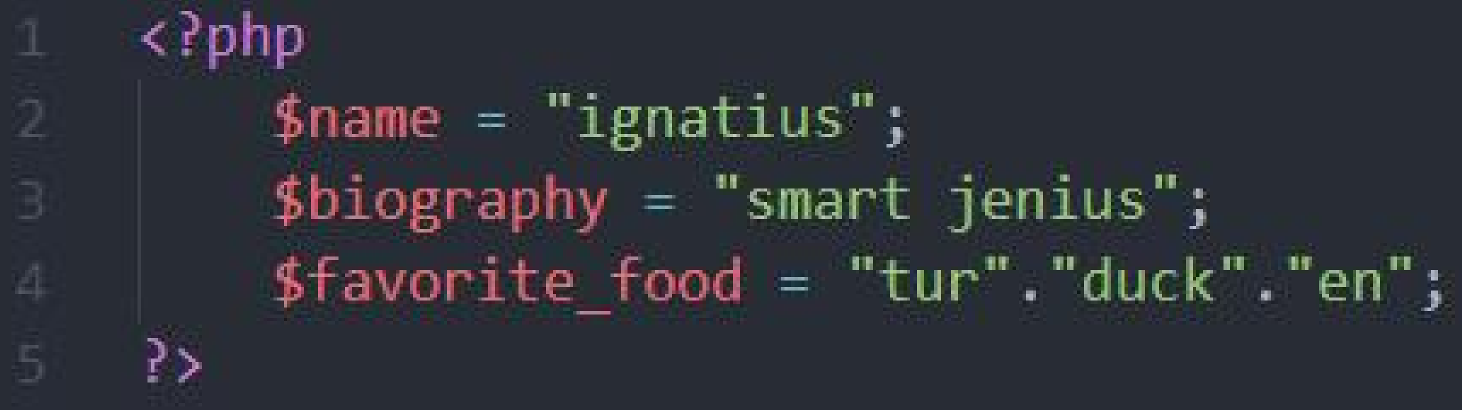
$my_example = “my value”;

Sigil

Variable Name

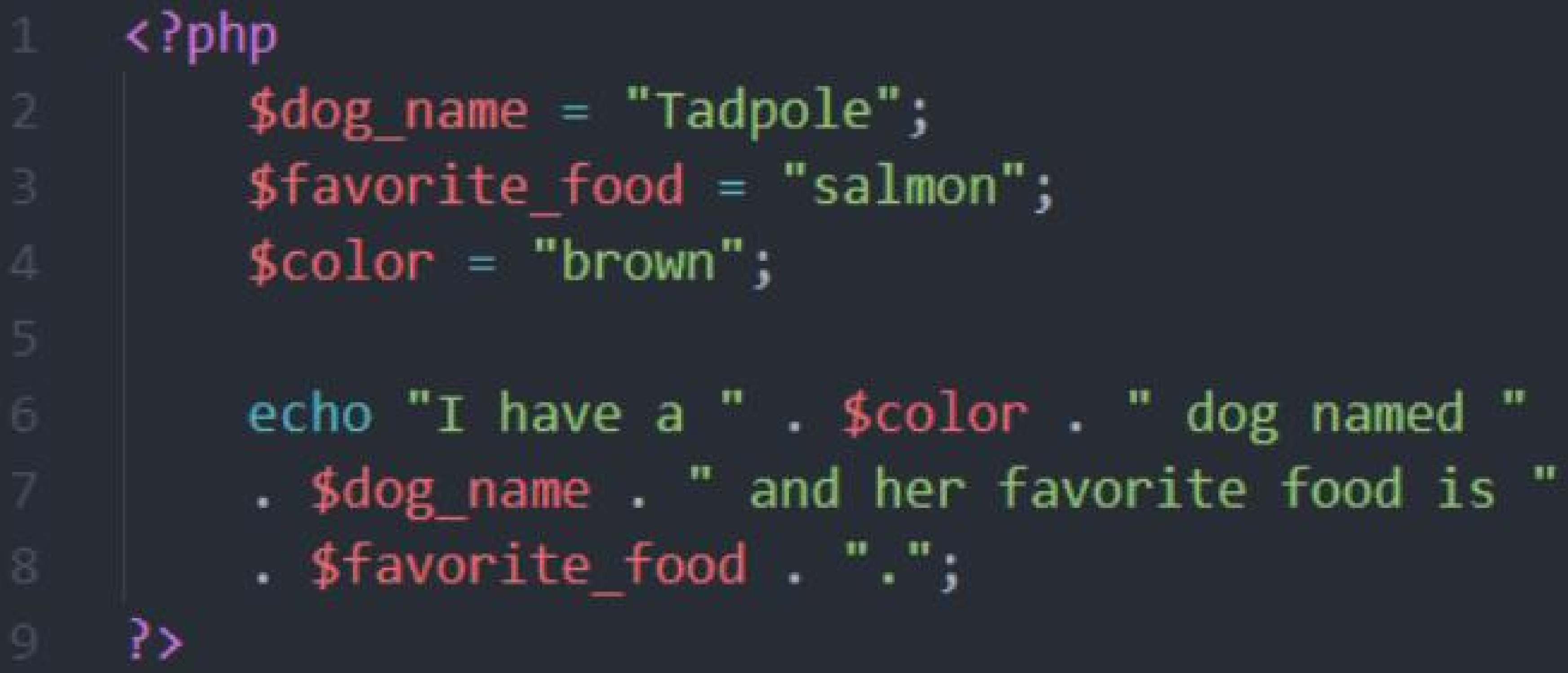
Assignment Operator

Variable Value



```
<?php
    $name = "ignatius";
    $biography = "smart jenius";
    $favorite_food = "tur"."duck"."en";
?>
```

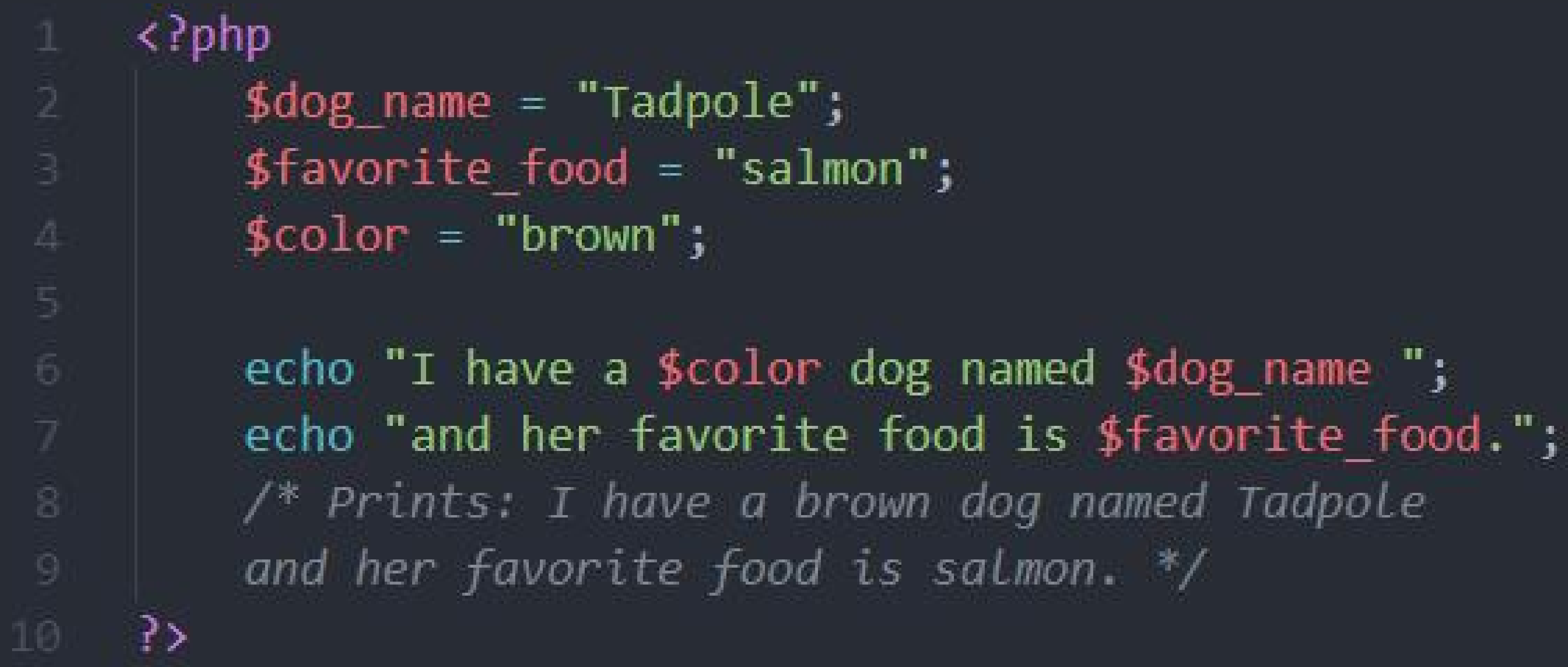
Using Variables



```
<?php
    $dog_name = "Tadpole";
    $favorite_food = "salmon";
    $color = "brown";

    echo "I have a " . $color . " dog named "
    . $dog_name . " and her favorite food is "
    . $favorite_food . ".";
?>
```

Variable Parsing

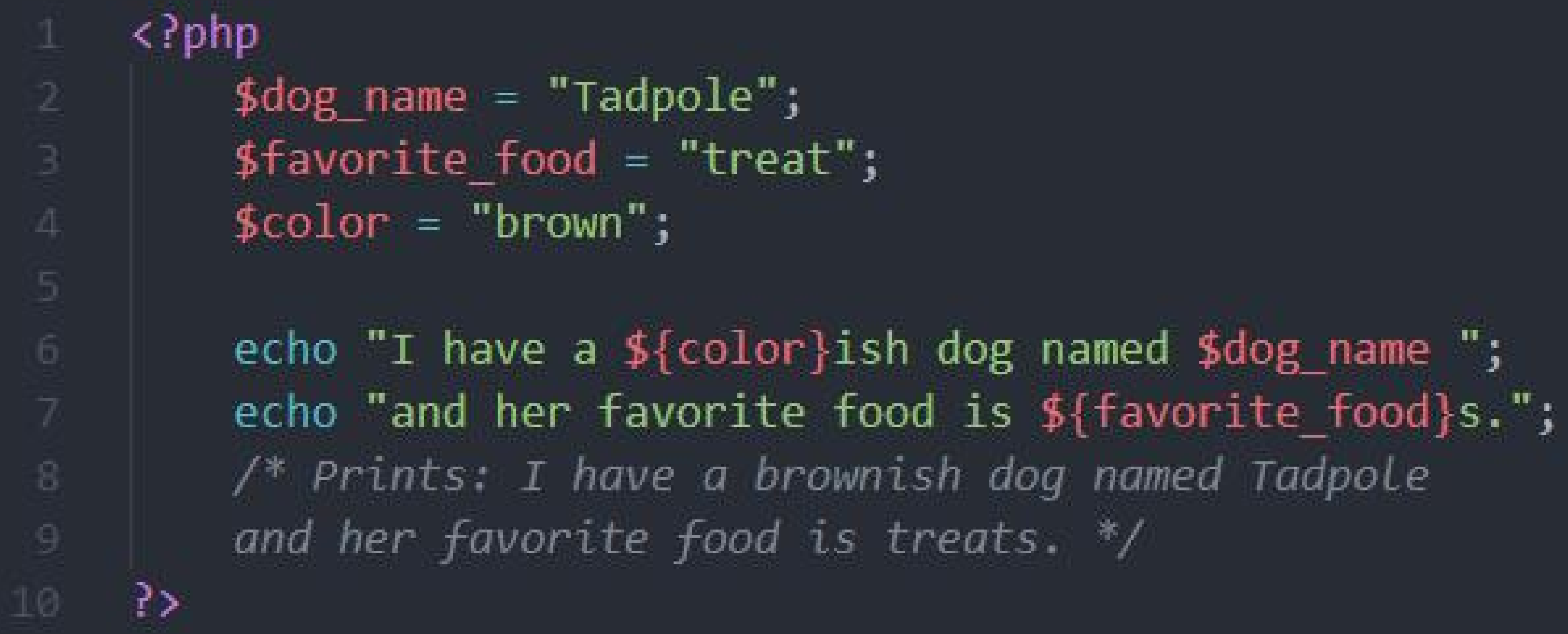
- PHP strings allow us to place variables directly into double quoted strings.



```php
<?php
    $dog_name = "Tadpole";
    $favorite_food = "salmon";
    $color = "brown";

    echo "I have a $color dog named $dog_name ";
    echo "and her favorite food is $favorite_food.";
    /* Prints: I have a brown dog named Tadpole
    and her favorite food is salmon. */
?>
```

Variable Parsing

- PHP allows us to specifically indicate the variable name by wrapping it in curly braces to avoid any confusion.



```php
<?php
    $dog_name = "Tadpole";
    $favorite_food = "treat";
    $color = "brown";

    echo "I have a ${color}ish dog named $dog_name ";
    echo "and her favorite food is ${favorite_food}s.";
    /* Prints: I have a brownish dog named Tadpole
    and her favorite food is treats. */
?>
```

Data Type

Pada PHP, tipe data variabel tidak didefinisikan oleh programmer, secara otomatis ditentukan oleh intepreter PHP

1. boolean
2. integer
3. float
4. string
5. array
6. object
7. NULL

Operator

Jenis Operator	Op.	Contoh	Keterangan
Penugasan	=	$a = 5	Variabel a diisi dengan nilai 4
Aritmatika	+	$a + $b	Penambahan
	-	$a - $b	Pengurangan
	*	$a * $b	Perkalian
	/	$a / $b	Pembagian
	%	$a % $b	Modulo
	++	$a++	Menambahkan 1 nilai ke variabel
	--	$a--	Mengurangi 1 nilai ke variabel

Operator

Jenis Operator	Op.	Contoh	Keterangan
Perbandingan	==	$a == $b	Sama dengan
	===	$a===$b	Identik
	!=	$a != $b	Tidak sama dengan
	<>	$a <> $b	Tidak sama dengan
	!==	$a !== $b	Tidak identik
	<	$a < $b	Kurang dari
	>	$a > $b	Lebih dari
	<=	$a <= $b	Kurang dari sama dengan
	>=	$a >= $b	Lebih dari sama dengan

Operator

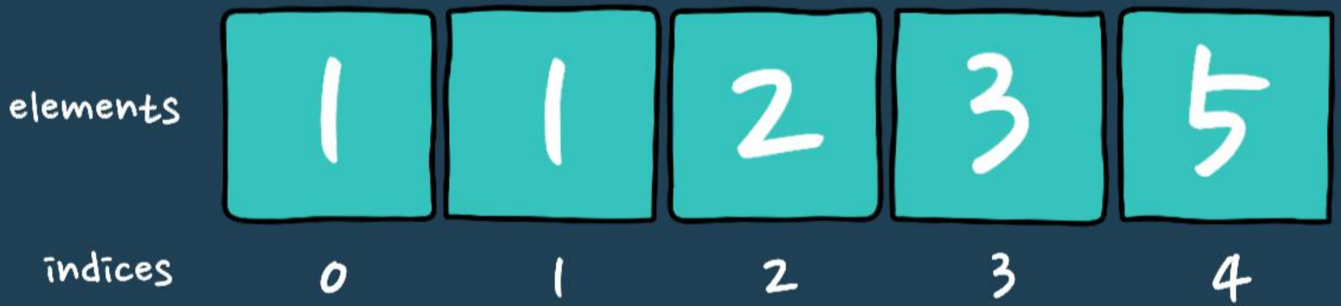
Jenis Operator	Op.	Contoh	Keterangan
Logika	AND	$a AND $b	TRUE jika $a dan $b TRUE
	&&	$a && $b	TRUE jika $a dan $b TRUE
	OR	$a OR $b	TRUE jika $a atau $b TRUE
	| |	$a | | $b	TRUE jika $a atau $b TRUE
	XOR	$a XOR $b	TRUE jika $a atau $b TRUE, tapi tidak keduanya
	!	!$a	TRUE jika $a fALSE

BUILT-IN PHP FUNCTIONS

- Converting a string of letters to uppercase and lowercase
- Displaying and using the date and time
- Initializing and closing a database connection
- Declaring and using an array
- Handling files
- Accessing data in forms
- etc.

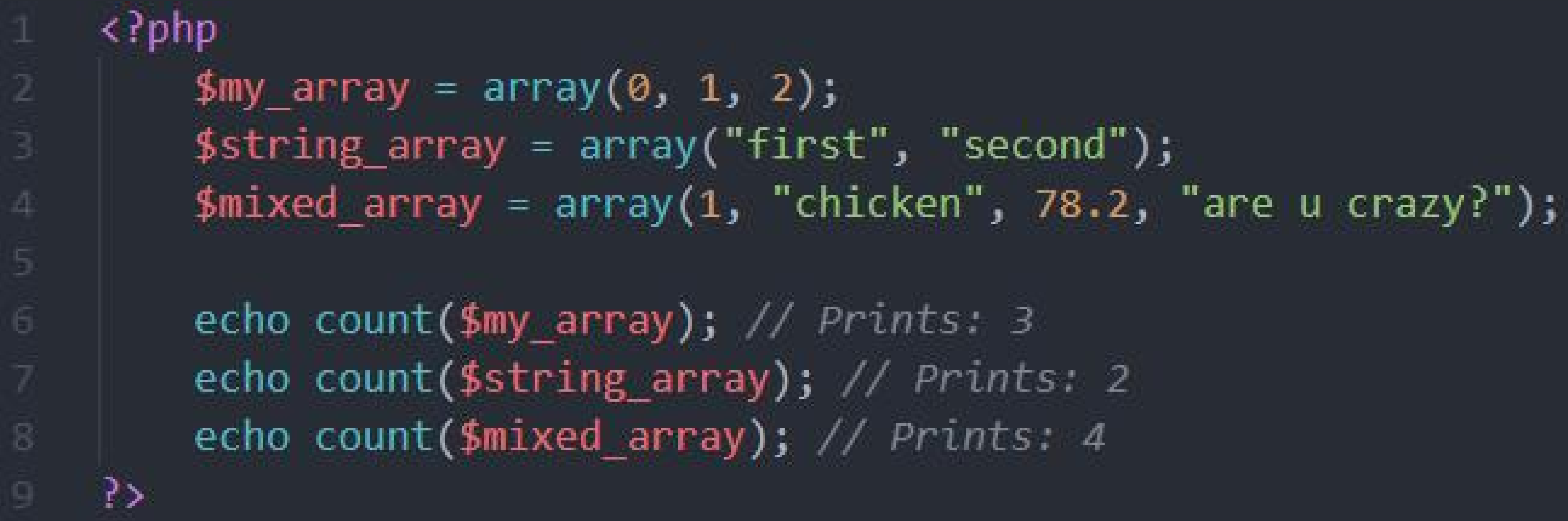
https://www.php.net/manual/en/funcref.php

Array (Ordered Arrays)



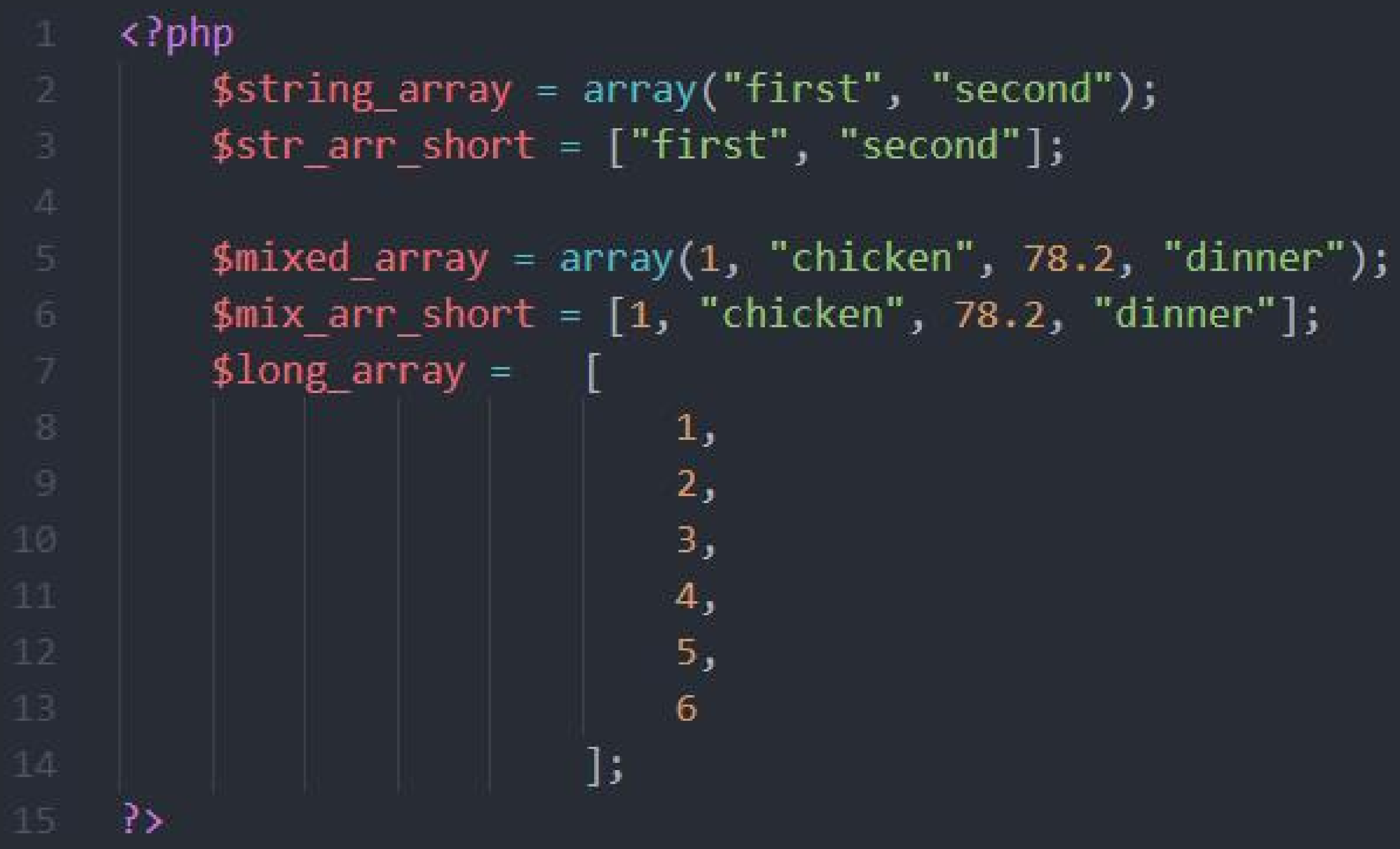
elements	1	1	2	3	5
indices	0	1	2	3	4

Creating Arrays



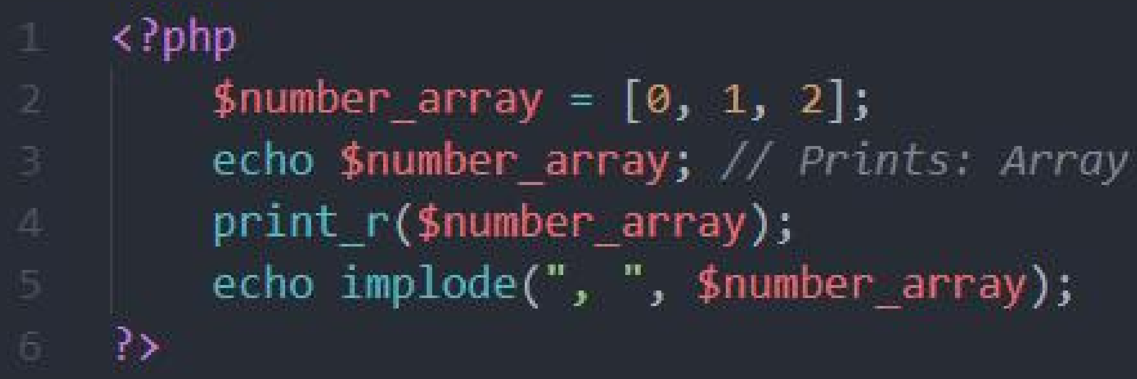
```php
<?php
    $my_array = array(0, 1, 2);
    $string_array = array("first", "second");
    $mixed_array = array(1, "chicken", 78.2, "are u crazy?");

    echo count($my_array); // Prints: 3
    echo count($string_array); // Prints: 2
    echo count($mixed_array); // Prints: 4
?>
```

Creating Arrays (Short Syntax)



```php
<?php
    $string_array = array("first", "second");
    $str_arr_short = ["first", "second"];

    $mixed_array = array(1, "chicken", 78.2, "dinner");
    $mix_arr_short = [1, "chicken", 78.2, "dinner"];
    $long_array =   [
                        1,
                        2,
                        3,
                        4,
                        5,
                        6
                    ];
?>
```

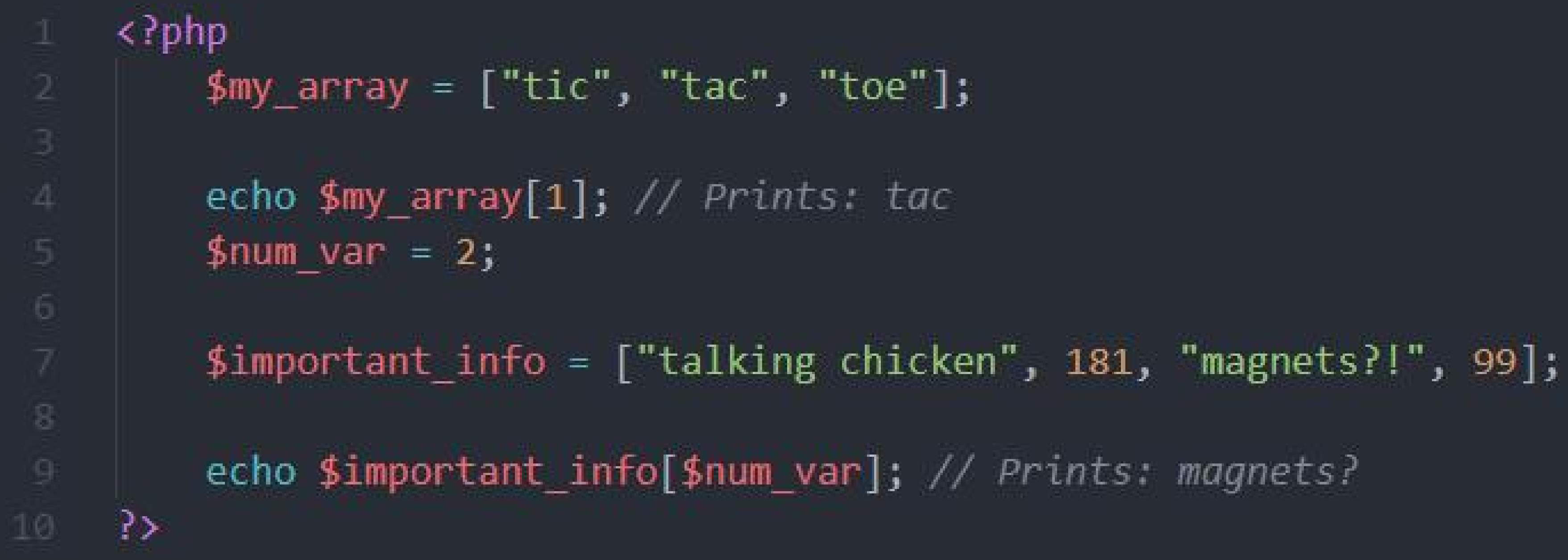
Printing Arrays



```php
<?php
    $number_array = [0, 1, 2];
    echo $number_array; // Prints: Array
    print_r($number_array);
    echo implode(", ", $number_array);
?>
```

Accessing an Element of Arrays

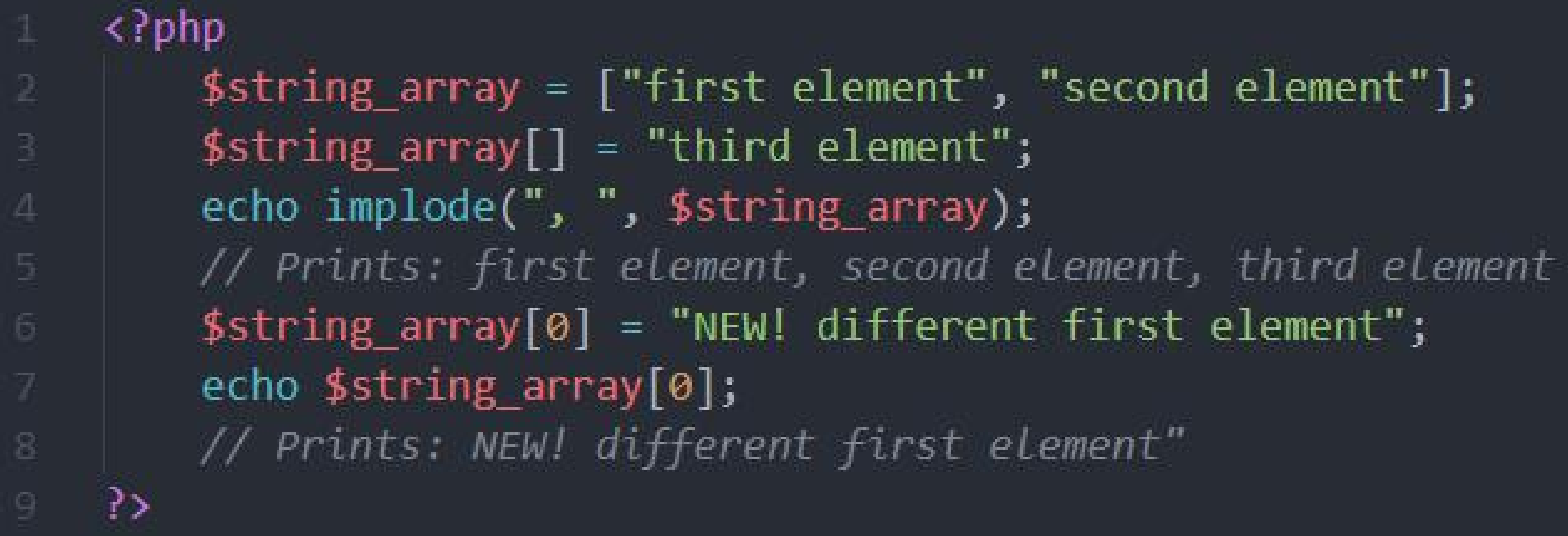
- The individual elements in an array can be accessed using the array variable’s name, and the location index surrounded by square brackets ([])



```
<?php
    $my_array = ["tic", "tac", "toe"];

    echo $my_array[1]; // Prints: tac
    $num_var = 2;

    $important_info = ["talking chicken", 181, "magnets?!", 99];

    echo $important_info[$num_var]; // Prints: magnets?
?>
```

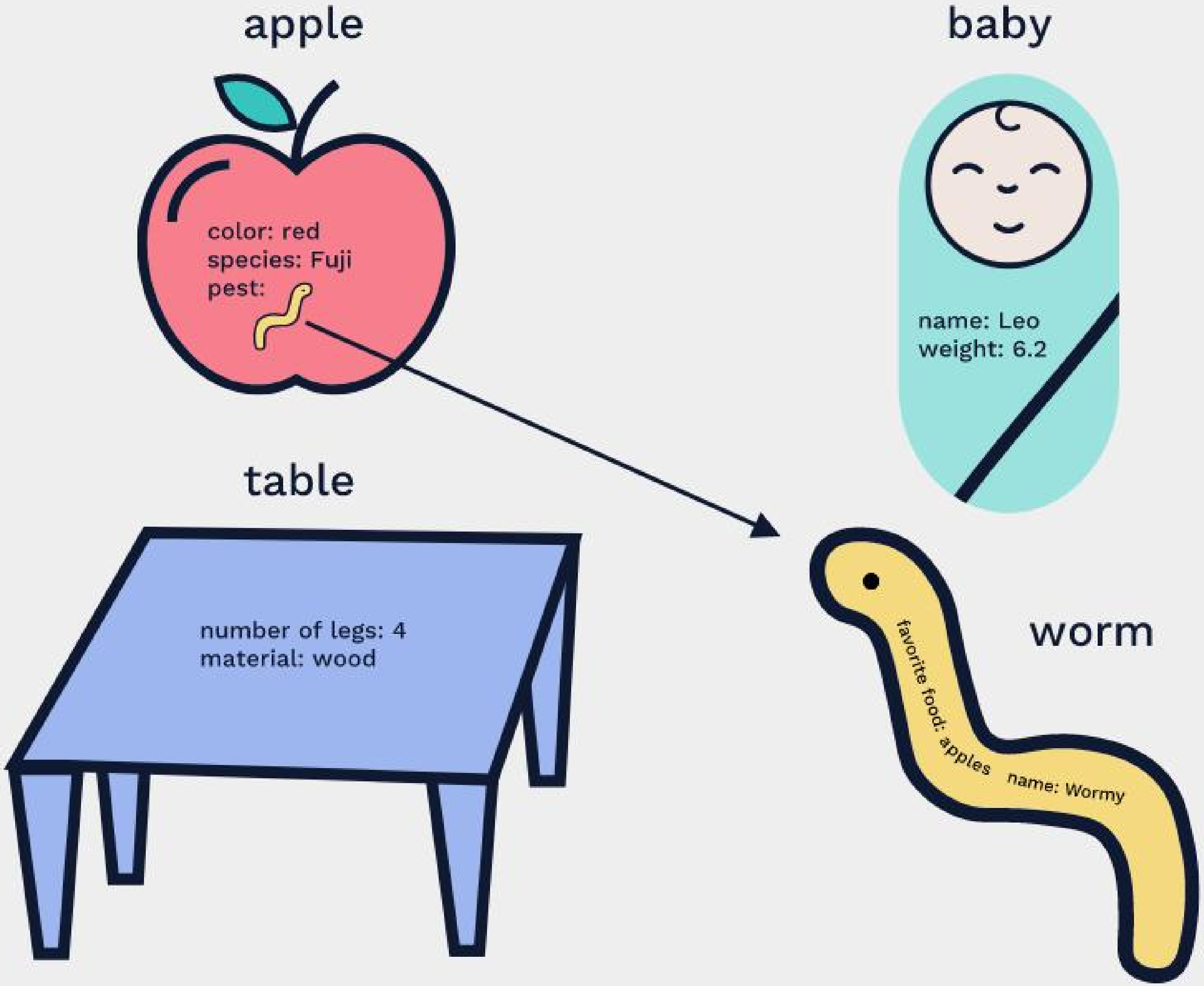
Adding and Changing Elements

- We can make adjustments to existing arrays—we don’t have to create a new array when we want our array to change.



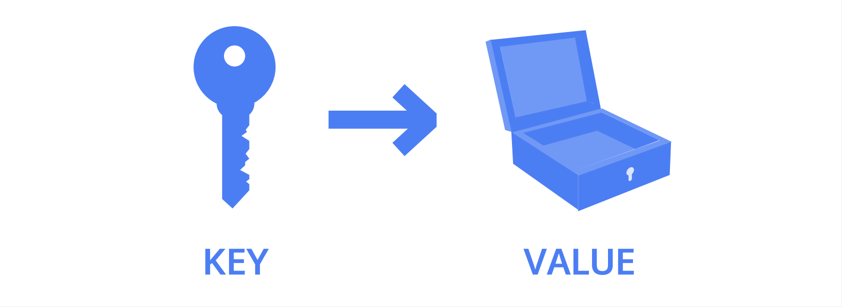
```php
<?php
    $string_array = ["first element", "second element"];
    $string_array[] = "third element";
    echo implode(", ", $string_array);
    // Prints: first element, second element, third element
    $string_array[0] = "NEW! different first element";
    echo $string_array[0];
    // Prints: NEW! different first element"
?>
```

Associative Arrays

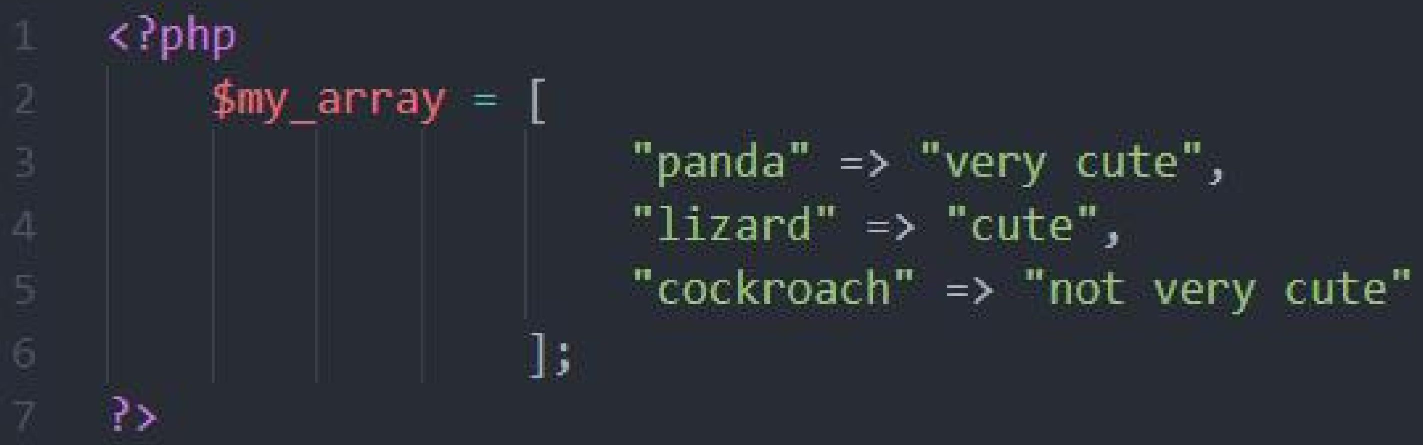


Associative Arrays

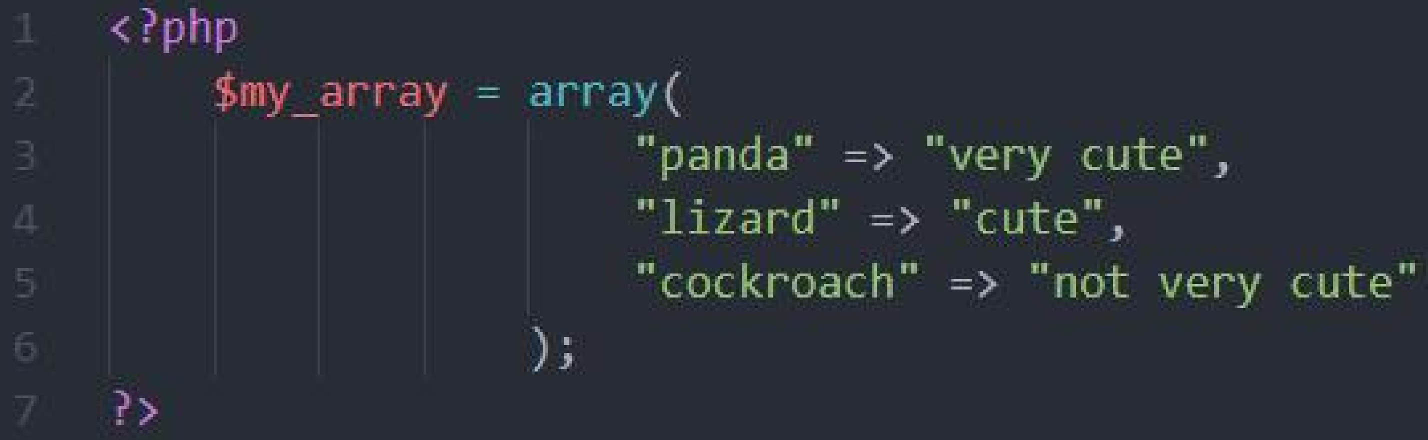
- Associative arrays are collections of key=>value pairs.
- The key in an associative array must be either a string or an integer. The values held can be any type.
- We use the => operator to associate a key with its value.



Associative Arrays



```php
<?php
    $my_array = [
                    "panda" => "very cute",
                    "lizard" => "cute",
                    "cockroach" => "not very cute"
                ];
?>
```



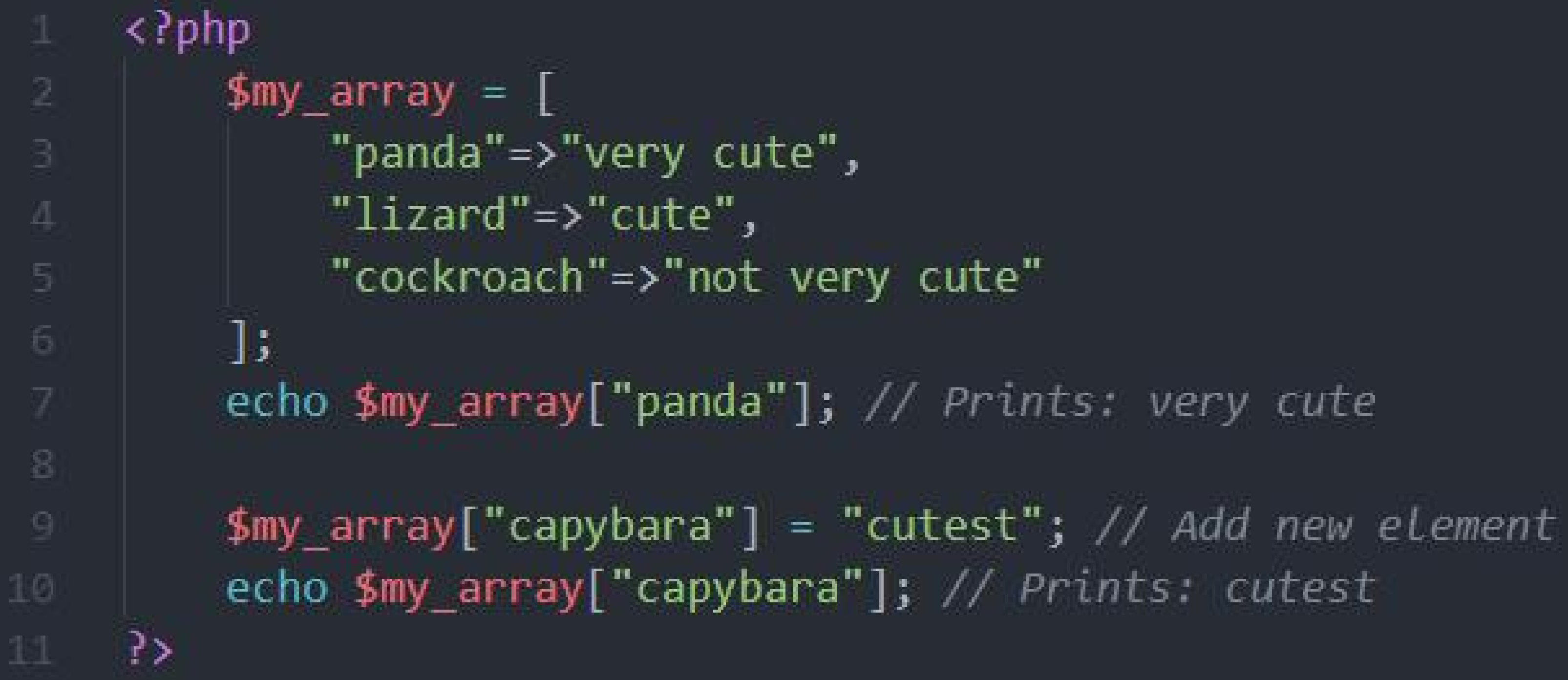
```php
<?php
    $my_array = array(
                    "panda" => "very cute",
                    "lizard" => "cute",
                    "cockroach" => "not very cute"
                );
?>
```

Associative Arrays - Exercise

- Use the `array()` function to create an array `$php_array` which has the following key => value pairs:
  - The key "`language`" should point to the value "`PHP`".
  - The key "`creator`" should point to the value "`Rasmus Lerdorf`".
  - The key "`year_created`" should point to the value `1995`.
  - The key "`filename_extensions`" should point to the value `[".php", ".phtml", ".php3", ".php4", ".php5", ".php7", ".phps", ".php-s", ".pht", ".phar"]` (an ordered array).

Accessing and Adding Elements

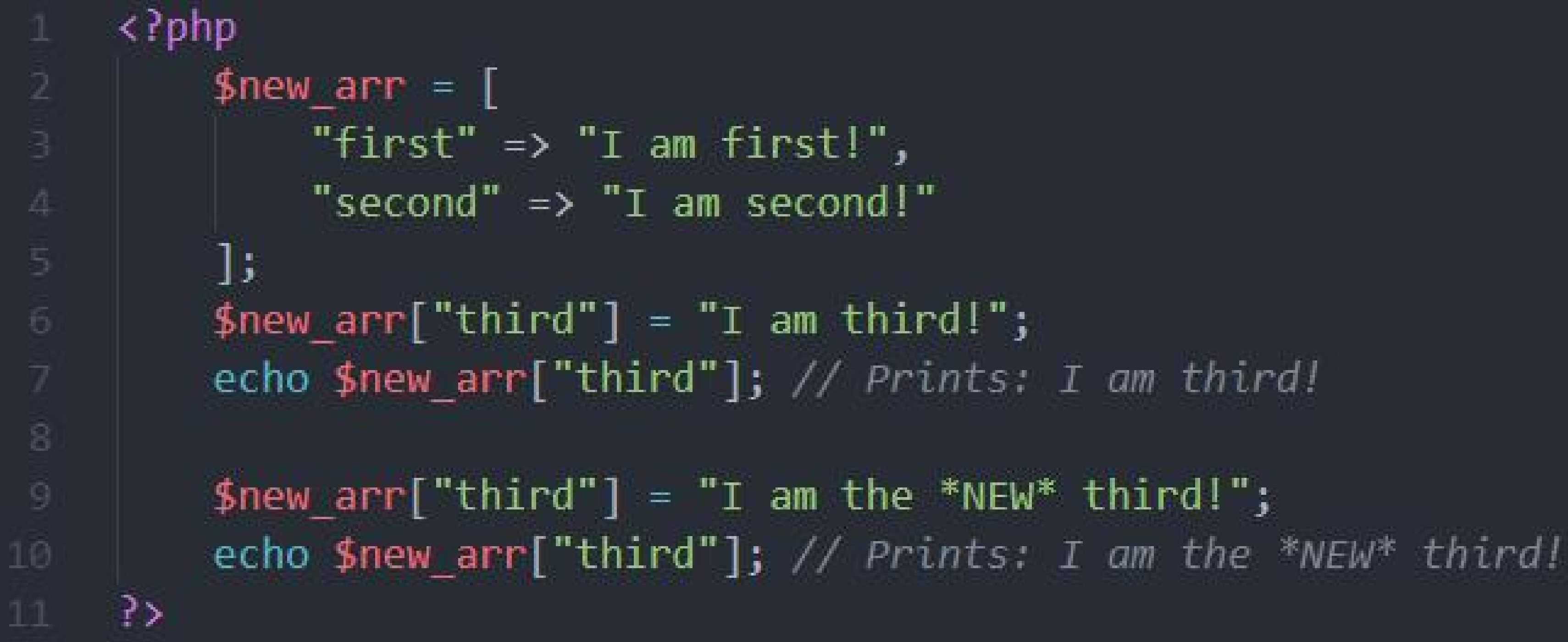
We access the value a given key points to using square brackets ([])



```php
<?php
    $my_array = [
        "panda"=>"very cute",
        "lizard"=>"cute",
        "cockroach"=>"not very cute"
    ];
    echo $my_array["panda"]; // Prints: very cute

    $my_array["capybara"] = "cutest"; // Add new element
    echo $my_array["capybara"]; // Prints: cutest
?>
```

Changing Elements

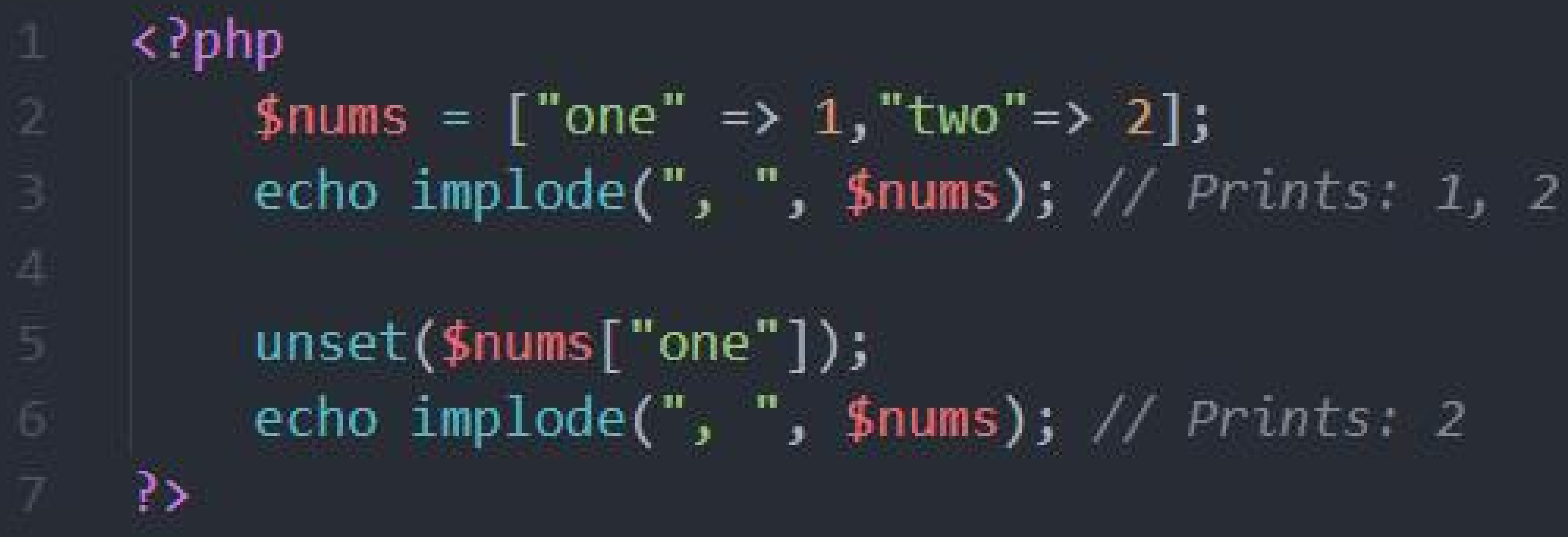
The same syntax that adds new array elements can be used to change existing elements



```php
<?php
    $new_arr = [
        "first" => "I am first!",
        "second" => "I am second!"
    ];
    $new_arr["third"] = "I am third!";
    echo $new_arr["third"]; // Prints: I am third!

    $new_arr["third"] = "I am the *NEW* third!";
    echo $new_arr["third"]; // Prints: I am the *NEW* third!
?>
```

Removing Elements

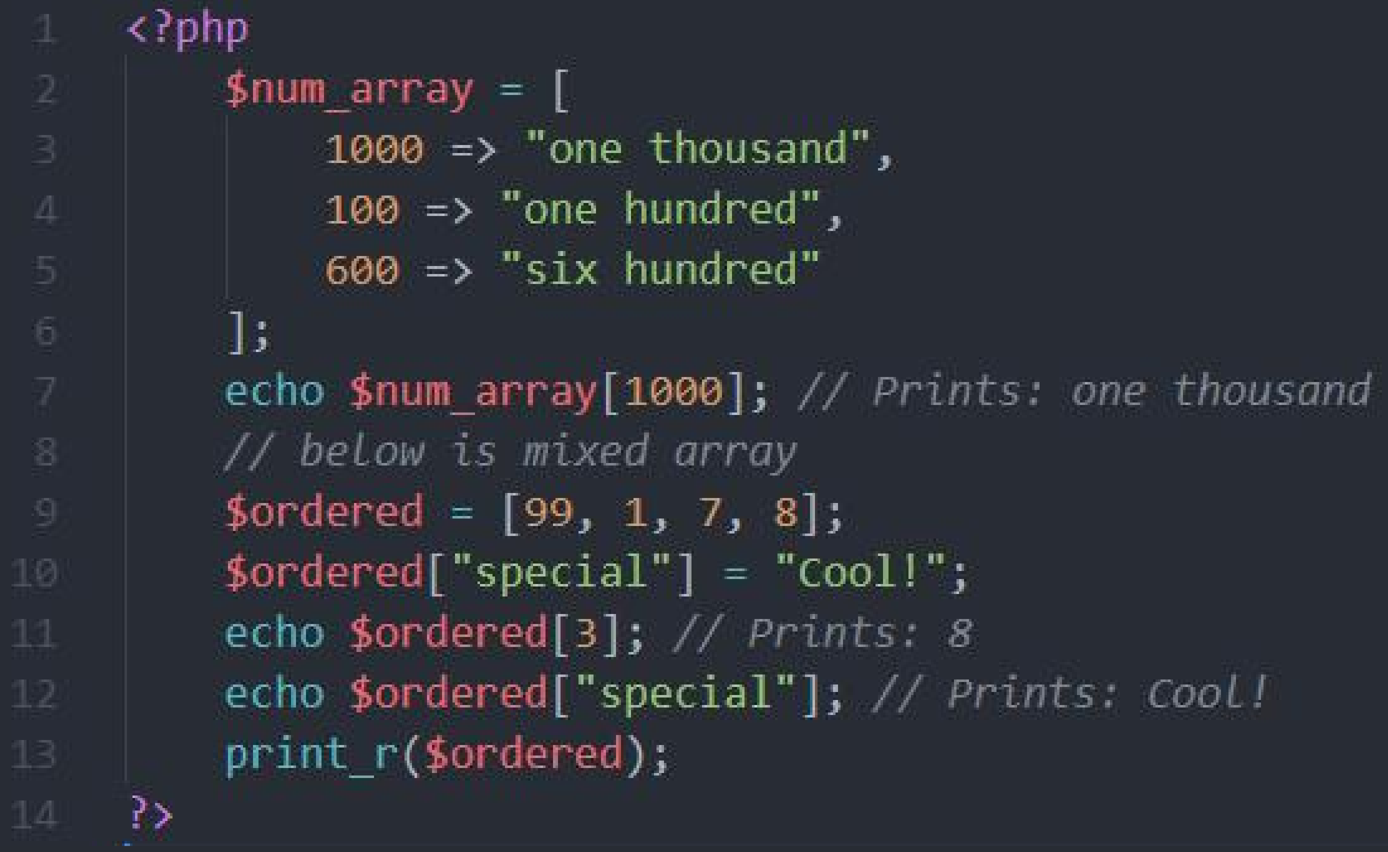
We can remove a key=>value pair entirely using the PHP `unset()` function



```php
<?php
    $nums = ["one" => 1,"two"=> 2];
    echo implode(", ", $nums); // Prints: 1, 2

    unset($nums["one"]);
    echo implode(", ", $nums); // Prints: 2
?>
```

Numerical Keys

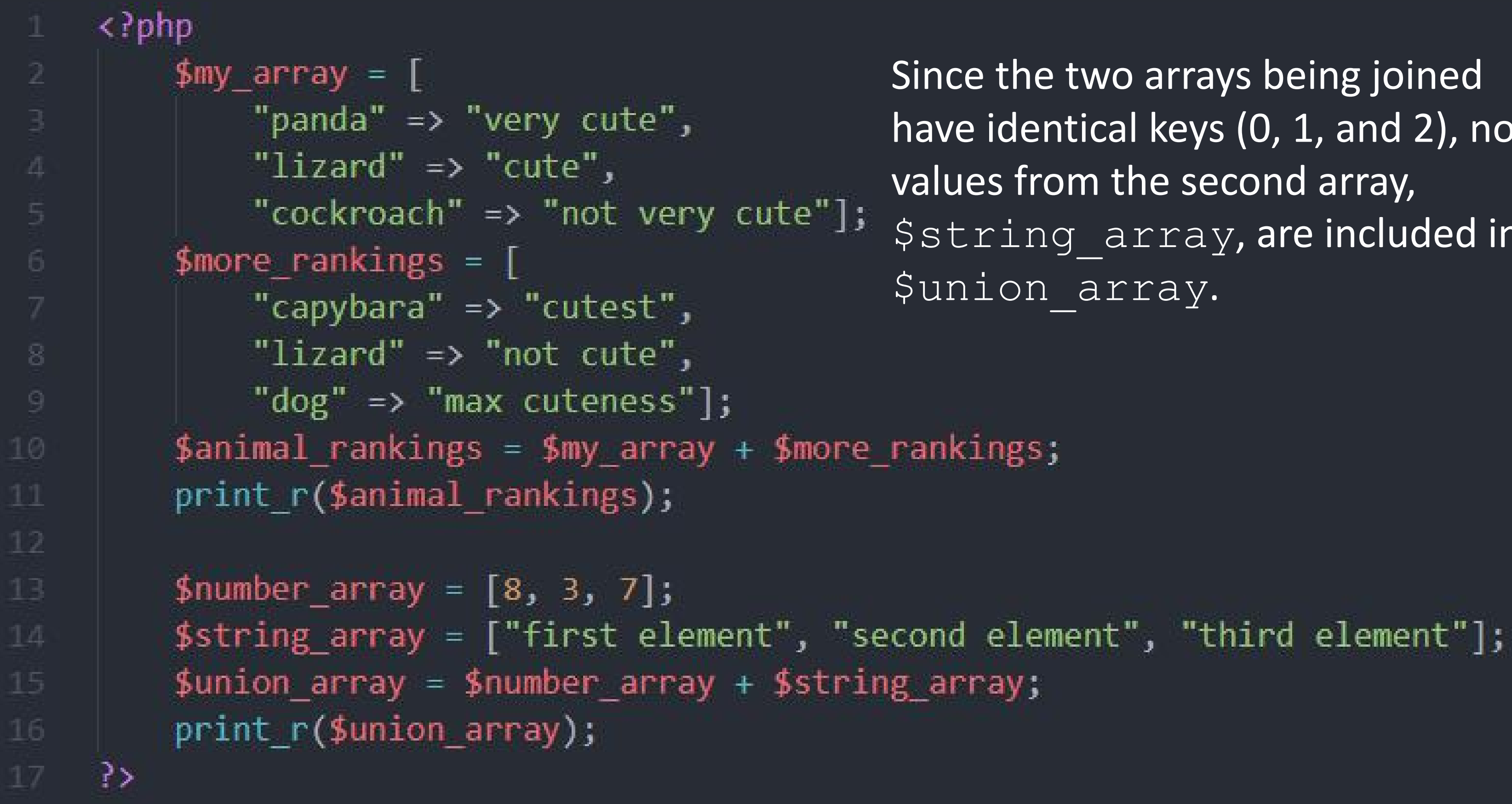
- Associative arrays can use integers as keys, in addition to strings.
- We can mix and match ordered arrays and asociative arrays.



```php
<?php
    $num_array = [
        1000 => "one thousand",
        100 => "one hundred",
        600 => "six hundred"
    ];
    echo $num_array[1000]; // Prints: one thousand
    // below is mixed array
    $ordered = [99, 1, 7, 8];
    $ordered["special"] = "Cool!";
    echo $ordered[3]; // Prints: 8
    echo $ordered["special"]; // Prints: Cool!
    print_r($ordered);
?>
```

Joining Arrays

PHP also lets us combine arrays. The union (+) operator takes two array operands and returns a new array with any unique keys from the second array appended to the first array.



```php
<?php
    $my_array = [
        "panda" => "very cute",
        "lizard" => "cute",
        "cockroach" => "not very cute"];
    $more_rankings = [
        "capybara" => "cutest",
        "lizard" => "not cute",
        "dog" => "max cuteness"];
    $animal_rankings = $my_array + $more_rankings;
    print_r($animal_rankings);

    $number_array = [8, 3, 7];
    $string_array = ["first element", "second element", "third element"];
    $union_array = $number_array + $string_array;
    print_r($union_array);
?>
```

Since the two arrays being joined have identical keys (0, 1, and 2), no values from the second array, `$string_array`, are included in `$union_array`.

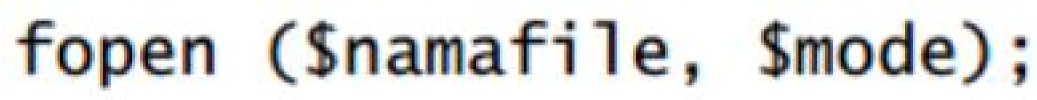
Penanganan File

- Fitur untuk memudahkan membaca dan menulis data dari/ke dalam file, biasanya untuk menyimpan konfigurasi, parameter dan lainnya.

Penanganan File

Membuka & menutup file

Sebelum mengakses file (untuk dibaca/diisi) melalui aplikasi Anda nanti, Anda harus membuka file tersebut menggunakan fungsi ***fopen()***

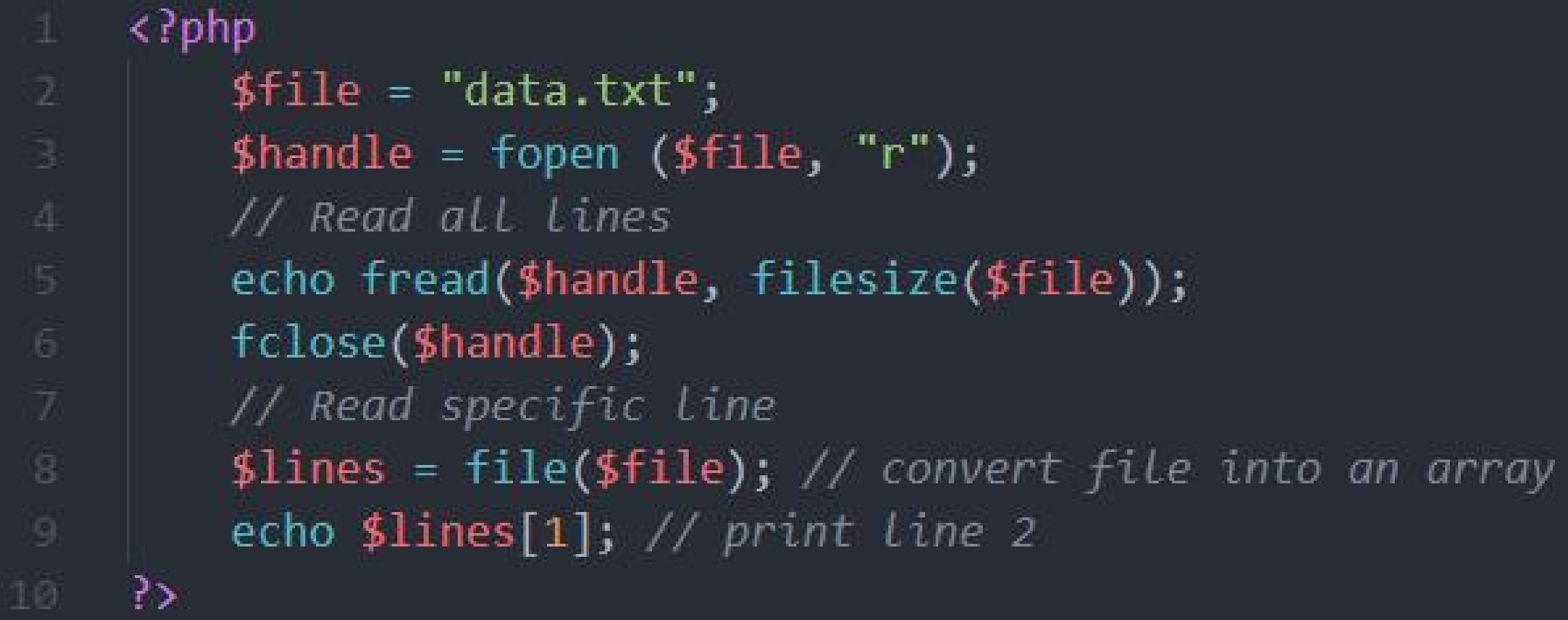


```
fopen ($namafile, $mode);
```

Setelah selesai membaca atau menulis file, Anda perlu menutup file tersebut dengan perintah ***fclose(file_pointer)***

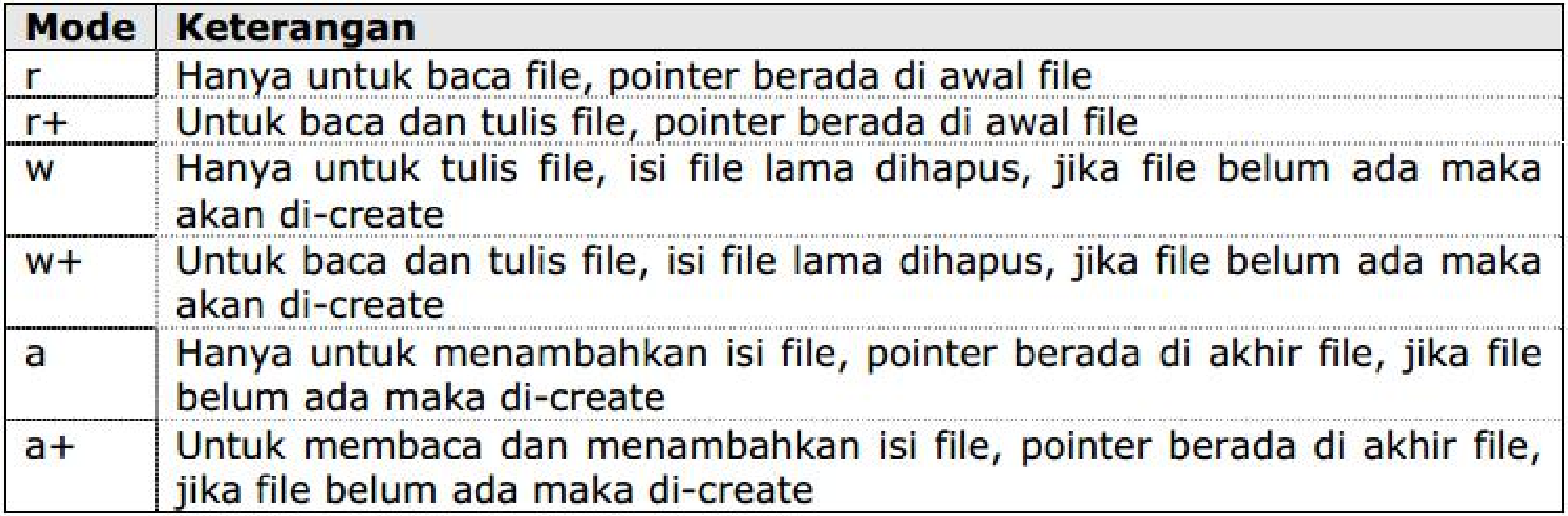
Penanganan File

Membuka dan membaca isi file



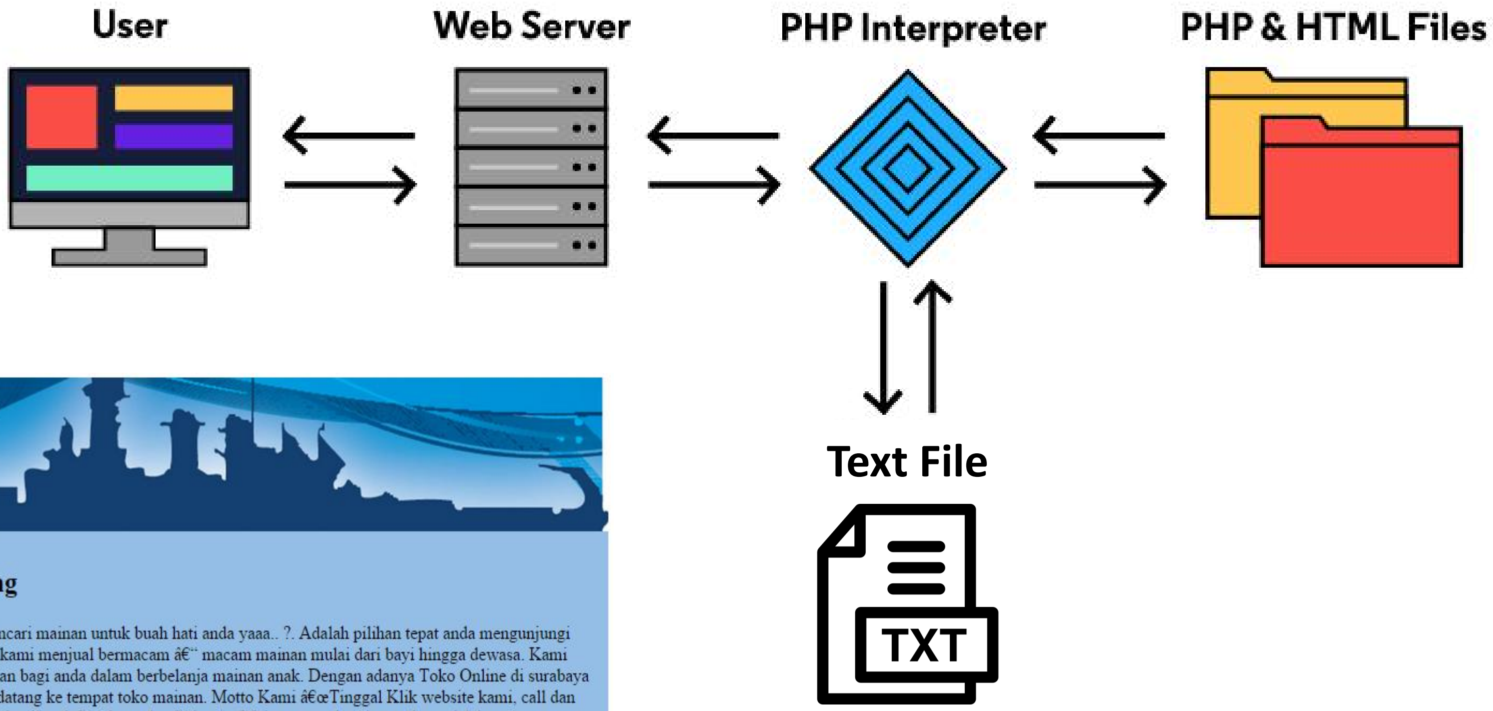
```php
<?php
    $file = "data.txt";
    $handle = fopen ($file, "r");
    // Read all lines
    echo fread($handle, filesize($file));
    fclose($handle);
    // Read specific line
    $lines = file($file); // convert file into an array
    echo $lines[1]; // print line 2
?>
```

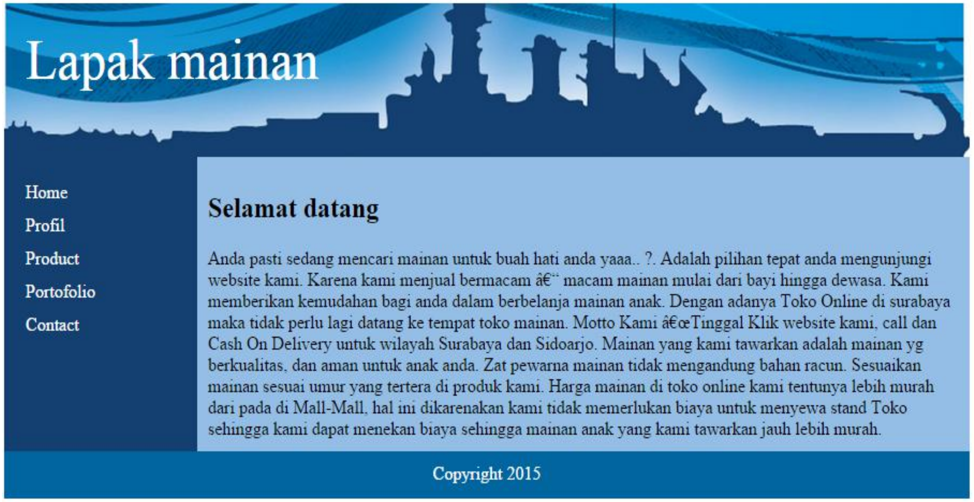
Penanganan File



Mode	Keterangan
r	Hanya untuk baca file, pointer berada di awal file
r+	Untuk baca dan tulis file, pointer berada di awal file
w	Hanya untuk tulis file, isi file lama dihapus, jika file belum ada maka akan di-create
w+	Untuk baca dan tulis file, isi file lama dihapus, jika file belum ada maka akan di-create
a	Hanya untuk menambahkan isi file, pointer berada di akhir file, jika file belum ada maka di-create
a+	Untuk membaca dan menambahkan isi file, pointer berada di akhir file, jika file belum ada maka di-create

Homework





Selamat datang

Anda pasti sedang mencari mainan untuk buah hati anda yaaa.. ?. Adalah pilihan tepat anda mengunjungi website kami. Karena kami menjual bermacam â€“ macam mainan mulai dari bayi hingga dewasa. Kami memberikan kemudahan bagi anda dalam berbelanja mainan anak. Dengan adanya Toko Online di surabaya maka tidak perlu lagi datang ke tempat toko mainan. Motto Kami â€œTinggal Klik website kami, call dan Cash On Delivery untuk wilayah Surabaya dan Sidoarjo. Mainan yang kami tawarkan adalah mainan yg berkualitas, dan aman untuk anak anda. Zat pewarna mainan tidak mengandung bahan racun. Sesuaikan mainan sesuai umur yang tertera di produk kami. Harga mainan di toko online kami tentunya lebih murah dari pada di Mall-Mall, hal ini dikarenakan kami tidak memerlukan biaya untuk menyewa stand Toko sehingga kami dapat menekan biaya sehingga mainan anak yang kami tawarkan jauh lebih murah.

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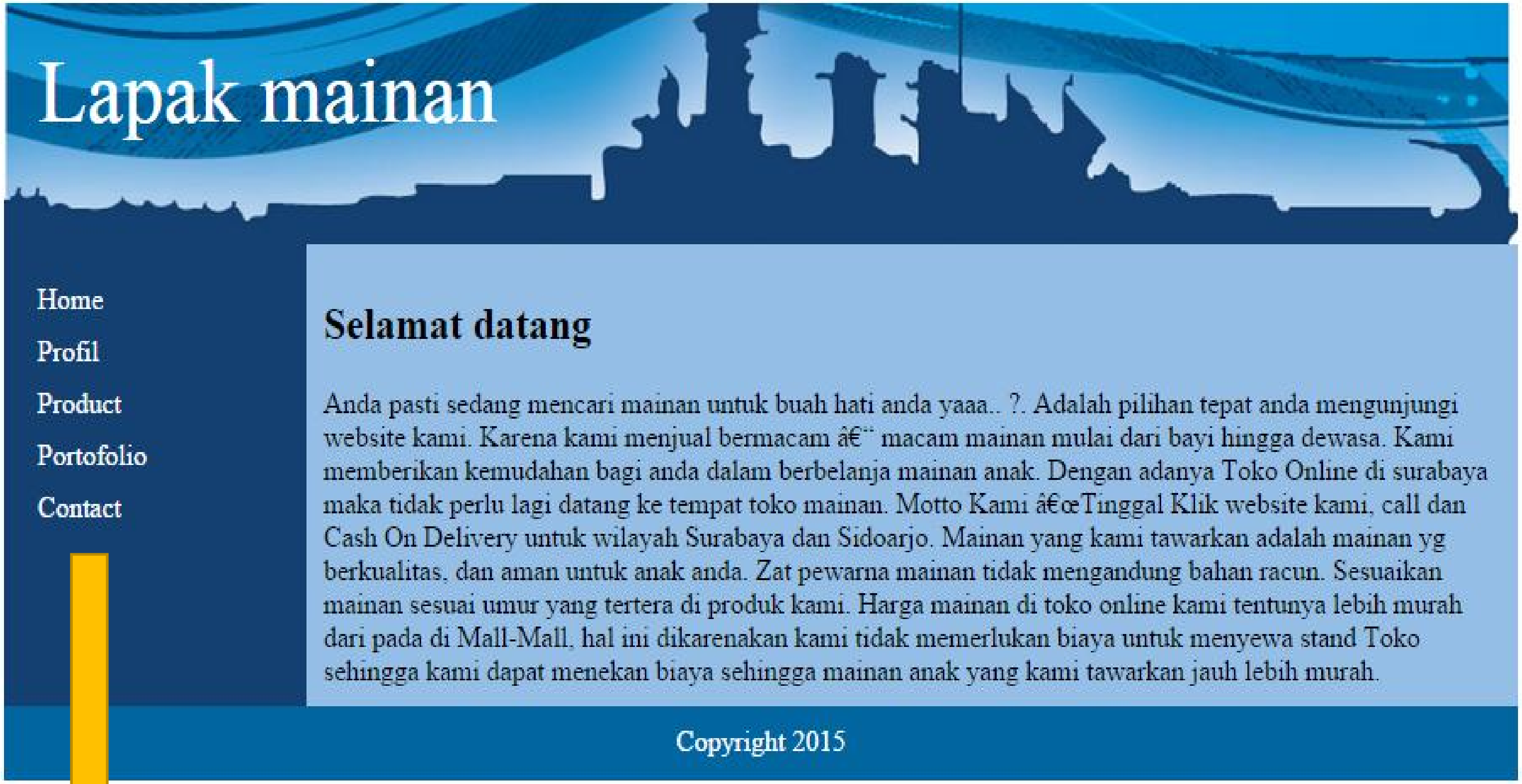
Convert to Dynamic Web
Use Text File as its Database

Homework



Lapak mainan

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Selamat datang

Anda pasti sedang mencari mainan untuk buah hati anda yaaa.. ?. Adalah pilihan tepat anda mengunjungi website kami. Karena kami menjual bermacam â€¨ macam mainan mulai dari bayi hingga dewasa. Kami memberikan kemudahan bagi anda dalam berbelanja mainan anak. Dengan adanya Toko Online di surabaya maka tidak perlu lagi datang ke tempat toko mainan. Motto Kami â€œTinggal Klik website kami, call dan Cash On Delivery untuk wilayah Surabaya dan Sidoarjo. Mainan yang kami tawarkan adalah mainan yg berkualitas, dan aman untuk anak anda. Zat pewarna mainan tidak mengandung bahan racun. Sesuaikan mainan sesuai umur yang tertera di produk kami. Harga mainan di toko online kami tentunya lebih murah dari pada di Mall-Mall, hal ini dikarenakan kami tidak memerlukan biaya untuk menyewa stand Toko sehingga kami dapat menekan biaya sehingga mainan anak yang kami tawarkan jauh lebih murah.

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