Web Technologies
PHP introduction

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Index

Index

PHP programming

- PHP: Hypertext Preprocessor

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- http://www.php.net

Beginning with PHP

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- variable names are **case sensitive**: $var and $Var are two distinct variables.

A mandatory Hello World example

```php
1  <!doctype html>
2  <title>Hello world!</title>
3  <meta charset="UTF-8">
4
5  <?php
6  # Inline comment type 1
7  // Inline comment type 2
8
9  echo ("Hello ");   # Using echo with parentheses
10 echo "World!";     // Using echo without parentheses
11
12 /* Multi-line
13 comment */
14 ?>
```

Listing 1: PHP - Hello world in PHP

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- Using the interactive console:
    $ php -a

A request-response cycle in HTTP

Figure: Processing HTTP requests with PHP

Working with functions

```php
1 <?php
2 function printHello($name="World") {
3   echo "Hello " . $name;
4 }
5 ?><!doctype html>
6 <title>Working with functions</title>
7 <meta charset="UTF-8">
8 <p>
9   We can alternate between PHP and HTML seamlessly:
10   <?php printHello("Donald"); ?>
11 </p>
```
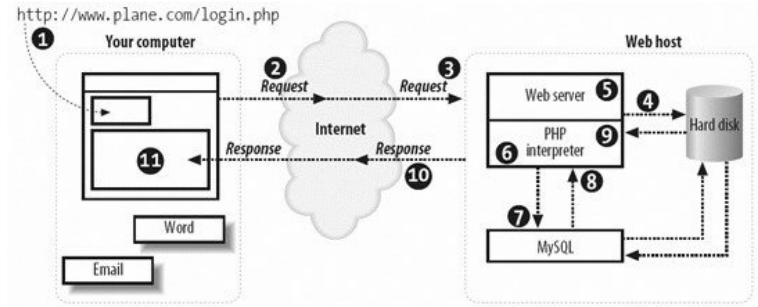
Listing 2: PHP - Functions in PHP

Commonly-used functions: http://www.php.net/quickref.php

Primitive and complex data types

Type	Meaning
Integer	Positive, 0 and negative numbers
Double	Real numbers
Boolean	Boolean values: either **true** or **false**
NULL	Dedicated data type whose value can only be **NULL**
String	Used to represent char and text sequences
Array	An associative array, a dictionary-like structure
Object	User-defined class
Resource	(Deprecated) A reference to an external resource (e.g. data-base connection or a file handle)

Data types and operators

```php
1 <?php
2 $var1 = 3;
3 $var1 = "Three"; // Dynamic types
4 $var1 = 3 + "7"; // Weak types, $var1 = 10
5
6 $var1 = "Web " . "technologies";
7 // $var1 = "Web technologies"
8
9 $var1 = 'PHP';
10 $var2 = 5;
11 $var3 = $var2 + 1;
12 $var2 = $var1;
13
14 echo($var1); // "PHP"
15 echo($var2); // "PHP"
16 echo($var3); // 6
17 ?>
```

Listing 3: PHP - Variables and operators

Data types and operators

```php
1 <?php
2
3 echo(' Learning ' . $var1);
4 // Concatenation
5
6 echo(" Learning $var1");
7 // String interpolation when using double quotes
8 // Output:" Learning PHP"
9
10 echo(' Learning $var1');
11 // No string interpolation when using single quotes
12 // Output:" Learning $var1".
13
14 ?>
```

Listing 4: PHP - Variables and operators

Complex data types: Associative array

```php
1 <?php
2 $data = ['test', 1, 'two']; # Array creation
3 # Alternative, using the old syntax
4 $data = array('test', 1, 'two');
5
6 echo($data[0]);   # "test"
7 echo($data[1]);   # 1
8
9 $data[1] = 'one'; # Replace the value at index 1
10 $data[3] = 3.14;  # Add another element
11 $data[] = 'WT';   # Append another element at the end
12 echo($polje[4]);  # "WT"
13 ?>
```

Listing 5: PHP - An ordinary array

Complex data types: Associative array

```php
1 <?php
2 $capitals = [];
3 $capitals["Slovenia"] = "Ljubljana";
4 $capitals["Croatia"] = "Zagreb";
5 $capitals["Germany"] = "Berlin";
6
7 echo('Capital of Slovenia is " . $capitals["Slovenia"]);
8
9 foreach ($capitals as $country => $capital) {
10   echo("The capital of $country is $capital\n");
11 }
12 ?>
```

Listing 6: PHP - An associative array

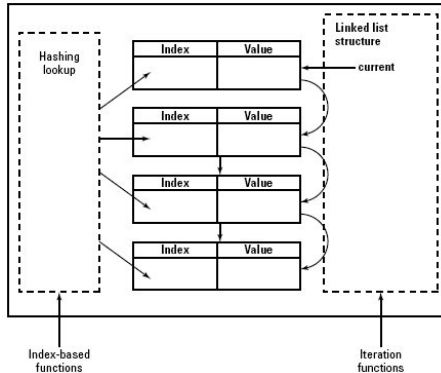# Complex data types: Associative array

Figure: Associative array is both a map and a link-list

Complex data types: Classes

```php
1  class BaseClass {
2      function __construct() {
3          echo "The basic constructor.";
4      }
5  }
6
7  class SubClass extends BaseClass {
8      public $var = "A default value";
9
10     function __construct() {
11         parent::__construct();
12         echo "Constructor inside the extended class";
13     }
14
15     public function displayVar() {
16         echo $this->var;
17     }
18 }
```

Listing 7: PHP - Defining a class

Complex data types: Classes

```php
1 <?php
2 $obj = new SubClass();
3 $obj->displayVar();
4 ?>
```

Listing 8: PHP - Using a class

Branching

```php
1 <?php
2 if ($number % 2 == 0) {
3   echo "The number is even.";
4 } else {
5   echo "The number is odd.";
6 }
7 ?>
```

Listing 9: PHP - Branching with if–statements

Loops: WHILE and FOR

```php
1  $count = 1;
2  while ($count <= 10) {
3    echo("$count \n");
4    $count++;
5  }
6
7  for ($i = 0; $i < 10; $i++) {
8    echo("$i \n");
9  }
```

Listing 10: PHP - Looping with WHILE and FOR

Index

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    - The server parses the request, constructs the response and returns it to the client over the same socket (TCP/80)

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    - The server parses the request, constructs the response and returns it to the client over the same socket (TCP/80)
    - An HTTP session may consist of several request-response cycles.

An HTTP Request message

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Host: www.example.com
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HTTP response message

```
HTTP/1.1 200 OK
Date: Mon, 23 May 2005 22:38:34 GMT
Server: Apache/1.3.3.7 (Unix) (Red-Hat/Linux)
Last-Modified: Wed, 08 Jan 2003 23:11:55 GMT
Etag: "3f80f-1b6-3e1cb03b"
Accept-Ranges: bytes
Content-Length: 438
Connection: close
Content-Type: text/html; charset=UTF-8

<!-- HTML code -->
```

HTTP methods

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- PUT, DELETE, TRACE, OPTIONS, CONNECT, PATCH

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- GET and POST are most commonly used.