Web Technology II - BIM 4th SEMESTER

Unit 2:Working with Text and Numbers

Working with Variables

A variable can have a short name (like x and y) or a more descriptive name (age, brandName, total_volume).

Rules for PHP variables:

- A variable starts with the $ sign, followed by the name of the variable
- A variable name must start with a letter or the underscore character
- A variable name cannot start with a number
- A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)
- Variable names are case-sensitive ($age and $AGE are two different variables)
- All variables in PHP are denoted with a leading dollar sign ($).
- The value of a variable is the value of its most recent assignment.
- Variables are assigned with the = operator, with the variable on the left-hand side and the expression to be evaluated on the right.
- Variables can, but do not need, to be declared before assignment.
- Variables in PHP do not have intrinsic types - a variable does not know in advance whether it will be used to store a number or a string of characters.
- Variables used before they are assigned have default values.
- PHP does a good job of automatically converting types from one to another when necessary.
- PHP variables are Perl-like.

Remember that PHP variable names are case-sensitive!

Creating (Declaring) PHP Variables

In PHP, a variable starts with the $ sign, followed by the name of the variable:

Example

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

After the execution of the statements above, the variable $txt will hold the value Hello world!, the variable $x will hold the value 5, and the variable $y will hold the value 10.5.

Note: When you assign a text value to a variable, put quotes around the value.

Note: Unlike other programming languages, PHP has no command for declaring a variable. It is created the moment you first assign a value to it.

Think of variables as containers for storing data.

Output Variables

The PHP echo statement is often used to output data to the screen.

The following example will show how to output text and a variable:

Example 1

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

The following example will produce the same output as the example above:

Example 2

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

The following example will output the sum of two variables:

Example 3

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

Types of Variables

PHP has a total of eight data types which we use to construct our variables −

- **Integers** − are whole numbers, without a decimal point, like 4195.
- **Doubles** − are floating-point numbers, like 3.14159 or 49.1.
- **Booleans** − have only two possible values either true or false.
- **NULL** − is a special type that only has one value: NULL.
- **Strings** − are sequences of characters, like 'PHP supports string operations.'

- **Arrays** − are named and indexed collections of other values.
- **Objects** − are instances of programmer-defined classes, which can package up both other kinds of values and functions that are specific to the class.
- **Resources** − are special variables that hold references to resources external to PHP (such as database connections).

Integers

They are whole numbers, without a decimal point, like 4195. They are the simplest type .they correspond to simple whole numbers, both positive and negative. Integers can be assigned to variables, or they can be used in expressions, like so −

```
$int_var = 12345;
$another_int = -12345 + 12345;
```

Doubles

They like 3.14159 or 49.1. By default, doubles print with the minimum number of decimal places needed. For example, the code −

```
<?php
   $many = 2.2888800;
   $many_2 = 2.2111200;
   $few = $many + $many_2;

   print("$many + $many_2 = $few <br>");
?>
```

It produces the following browser output −

```
2.28888 + 2.21112 = 4.5
```

Boolean

They have only two possible values either true or false. PHP provides a couple of constants especially for use as Booleans: TRUE and FALSE, which can be used like so −

```
if (TRUE)
   print("This will always print<br>");

else
   print("This will never print<br>");
```

Interpreting other types as Booleans

Here are the rules for determine the "truth" of any value not already of the Boolean type −

- If the value is a number, it is false if exactly equal to zero and true otherwise.
- If the value is a string, it is false if the string is empty (has zero characters) or is the string "0", and is true otherwise.
- Values of type NULL are always false.

- If the value is an array, it is false if it contains no other values, and it is true otherwise. For an object, containing a value means having a member variable that has been assigned a value.
- Valid resources are true (although some functions that return resources when they are successful will return FALSE when unsuccessful).
- Don't use double as Booleans.

Each of the following variables has the truth value embedded in its name when it is used in a Boolean context.

```
$true_num = 3 + 0.14159;
$true_str = "Tried and true"
$true_array[49] = "An array element";
$false_array = array();
$false_null = NULL;
$false_num = 999 - 999;
$false_str = "";
```

NULL

NULL is a special type that only has one value: NULL. To give a variable the NULL value, simply assign it like this −

```
$my_var = NULL;
```

The special constant NULL is capitalized by convention, but actually it is case insensitive; you could just as well have typed −

```
$my_var = null;
```

A variable that has been assigned NULL has the following properties −

- It evaluates to FALSE in a Boolean context.
- It returns FALSE when tested with the isset() function.

Strings

They are sequences of characters, like "PHP supports string operations". Following are valid examples of string

```
$string_1 = "This is a string in double quotes";
$string_2 = 'This is a somewhat longer, singly quoted string';
$string_39 = "This string has thirty-nine characters";
$string_0 = ""; // a string with zero characters
```

Singly quoted strings are treated almost literally, whereas 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!';

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

  $literally = "My $variable will print!";
  print($literally);
?>
```

This will produce following result −

```
My $variable will not print!
My name will print
```

The escape-sequence replacements are −

- \n is replaced by the newline character
- \r is replaced by the carriage-return character
- \t is replaced by the tab character
- \$ is replaced by the dollar sign itself ($)
- \" is replaced by a single double-quote (")
- \\ is replaced by a single backslash (\)

Variable Scope

Scope can be defined as the range of availability a variable has to the program in which it is declared. PHP variables can be one of four scope types −

- Local variables
- Function parameters
- Global variables
- Static variables

PHP Numbers

One thing to notice about PHP is that it provides automatic data type conversion.

So, if you assign an integer value to a variable, the type of that variable will automatically be an integer. Then, if you assign a string to the same variable, the type will change to a string. This automatic conversion can sometimes break your code.

PHP Integers

2, 256, -256, 10358, -179567 are all integers.

An integer is a number without any decimal part.

An integer data type is a non-decimal number between -2147483648 and 2147483647 in 32 bit systems, and between -9223372036854775808 and 9223372036854775807 in 64 bit systems. A value greater (or lower) than this, will be stored as float, because it exceeds the limit of an integer.

Here are some rules for integers:

- An integer must have at least one digit
- An integer must NOT have a decimal point
- An integer can be either positive or negative
- Integers can be specified in three formats: decimal (10-based), hexadecimal (16-based - prefixed with 0x) or octal (8-based - prefixed with 0)

PHP has the following predefined constants for integers:

- PHP_INT_MAX - The largest integer supported
- PHP_INT_MIN - The smallest integer supported
- PHP_INT_SIZE - The size of an integer in bytes

PHP has the following functions to check if the type of a variable is integer:

- is_int()
- is_integer() - alias of is_int()
- is_long() - alias of is_int()

Example

Check if the type of a variable is integer:

```php
<?php
$x = 5985;
var_dump(is_int($x));

$x = 59.85;
var_dump(is_int($x));
?>
```

PHP with text /String Functions

strlen() - Return the Length of a String

The PHP strlen() function returns the length of a string.

Example

Return the length of the string "Hello world!":

```php
<?php
echo strlen("Hello world!"); // outputs 12
?>
```

str_word_count() - Count Words in a String

The PHP str_word_count() function counts the number of words in a string.

Example

Count the number of word in the string "Hello world!":

```
<?php
echo str_word_count("Hello world!"); // outputs 2
?>
```

strrev() - Reverse a String

The PHP strrev() function reverses a string.

Example

Reverse the string "Hello world!":

```
<?php
echo strrev("Hello world!"); // outputs !dlrow olleH
?>
```

strpos() - Search For a Text Within a String

The PHP strpos() function searches for a specific text within a string. If a match is found, the function returns the character position of the first match. If no match is found, it will return FALSE.

Example

Search for the text "world" in the string "Hello world!":

```
<?php
echo strpos("Hello world!", "world"); // output 6
?>
```

str_replace() - Replace Text Within a String

The PHP str_replace() function replaces some characters with some other characters in a string.

Example

Replace the text "world" with "Dolly":

```
<?php
echo str_replace("world", "Dolly", "Hello world!"); // outputs Hello Dolly!
?>
```