

Architecting Web Applications using PHP

Session 3

PHP Data Types and Strings

Session Overview

In this session, you will be able to:

- Identify different data types and their usage
- Explain different types of string functions, numbers, and math functions in PHP
- Elaborate on PHP constants and functions used to create constants
- Explain various PHP math functions and string types

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Data Types

Integer

- Represents numerical data

Float

- Comprises a number with a decimal point (fraction) or a number in exponential form

String

- A collection of characters

Boolean

- A simple variable type that results in true or false

Data Type Classification in PHP

Scalar Data Type

- Boolean
- Integer
- Float
- String

Compound Data Type

- Array
- Object

Special Data Type

- Null
- Resource

Integers

The integer data type comprises a whole number. It is platform-dependent.

This data type is often used to represent numerical data.

The maximum allowed value for an integer in PHP can be determined using `PHP_INT_MAX`.

Float

A float data type comprises a number with a decimal point (fraction) or a number in exponential form.

For example, 256.4, 10.358, 9.8, 7.64E+5, 5.56E-5, and so on.

It is also called 'double' or 'real number'.

The float data type can have a value as high as 1.7976931348623E+308, which varies with the platform. The value has a maximum precision of 14 digits.

Converting other Data Types into Float

Using `floatval()` function

A float is returned by this function. It is generated by typecasting the value of the variable passed to it as a parameter.

Using Type-Casting.

In Typecasting, the user explicitly specifies the data type into which the data should be cast.

Boolean

The simplest variable type is Boolean, which acts as a switch. It specifies a truth value that can be either true or false.

Booleans are frequently used in conditional statements; true if the condition is true, false if the condition is false.

To represent a bool literal, use the PHP constants true or false (both are case-insensitive).

PHP Array

An array is a single variable that contains values of the same data type. In PHP, an array is a predefined map that connects values to keys.

An array, list (vector), stack, hash table (a map implementation), collection, dictionary, queue, and so on can all be used to represent this type.

The `array()` language construct can be utilized to create an array.

Types of Array in PHP

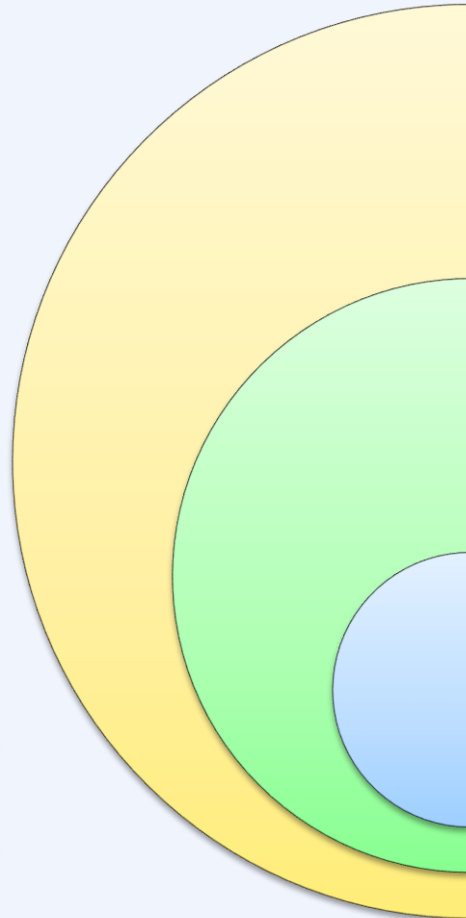
Indexed or Number Arrays

Associative arrays

Multi dimensional arrays

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PHP Object



Objects are the instances of user-defined classes that can store both values and functions. Objects must be declared explicitly.

PHP provides stdClass as a generic empty class which is useful for adding properties dynamically and casting.

In PHP, Object is a **compound data type** (along with arrays).

PHP Null Value

The null type refers to a variable with no value.

When a variable is created without a value. It is given the value NULL by default.

Only the value 'null' is permitted for the null type.

PHP Resource

It acts as a repository for externally referenced functions and resources.

The function `get_resource_type()` returns the resource type.

A Resource is a special variable, not a specific data type.

PHP String Functions

Functions	Definitions
<code>strlen()</code>	Return the length of the string
<code>str_word_count()</code>	The function returns the number of words in a string.
<code>strrev()</code>	It is a predefined function used to reverse a string.
<code>strpos()</code>	function is used to find a specified text within a string.
<code>str_replace()</code>	Function to replace characters in a string.
<code>ucwords()</code>	Function returns string converting first character of each word into uppercase.

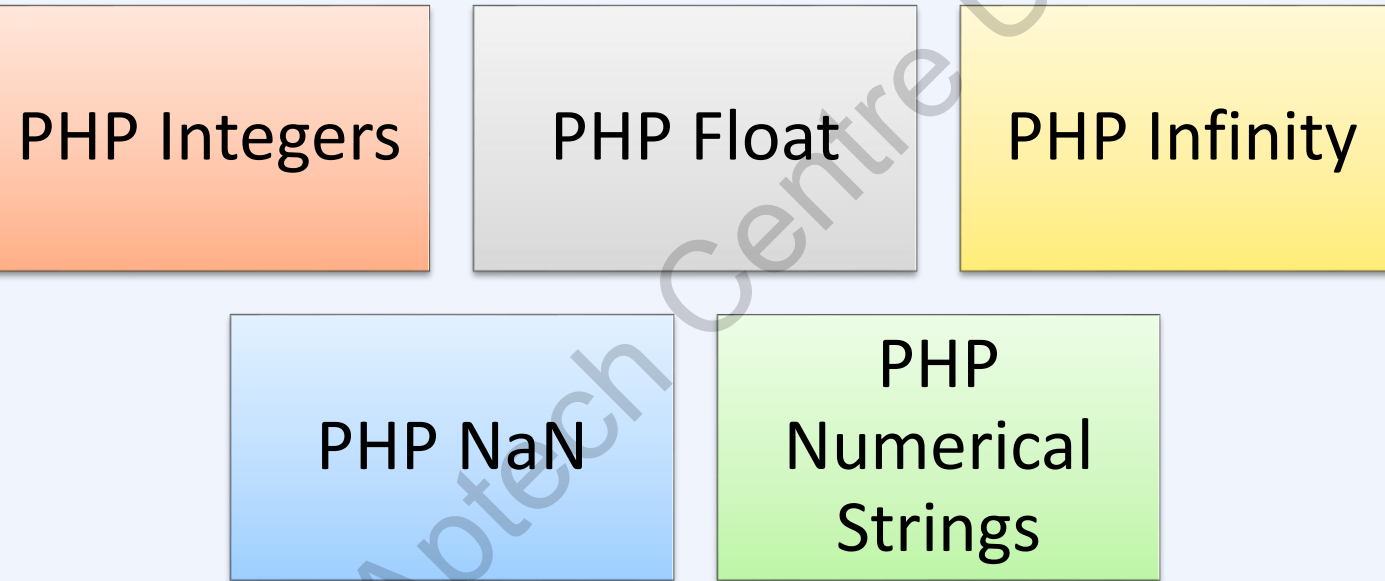
PHP Numbers

PHP is that it can convert data types automatically.

If you give a variable an integer value, the variable's type will be an integer as well.

The type of the variable will then change to a string if someone assign a string to it.

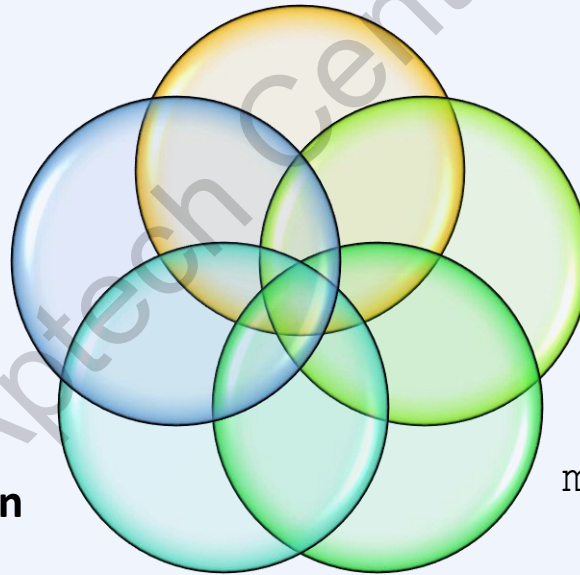
Types of PHP Numbers



PHP Math: Math Functions in PHP 1-2

The approximate
value of PI is
returned by
`pi()`.

`min()` function
returns the
lowest value.



`max()` function
is used to find
the highest
value.

PHP Math: Math Functions in PHP 2-2

The `abs()` function returns the absolute positive value of an integer.

Function `sqrt()` returns the square root of a given number.

The `round()` function returns a float number rounded value.

The `rand()` function returns random number.

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PHP Constants

Constants are similar to variables, where they cannot be altered or undefined after they have been defined.

A constant is a term that identifies a single value. The value of the constant cannot be changed while the script is running.

The constant name can only begin with a letter or an underscore (\$ sign should not be before the constant name).

Constants, unlike variables, are automatically global over the whole script.

PHP define()

`define()` : Use `define()` function to create a constant.

Parameter	Description	Default Value
Name	Defines the name of the constant	NA
value	Specifies the value of the constant	NA
Case-insensitive	Should the constant name be case-insensitive?	false

Magic Constants

There are nine magic constants in PHP. In which eight magic constants start and end with double underscores (__).

Magic Constants:

__LINE__

__FILE__

__DIR__

__FUNCTION__

__CLASS__

__TRAIT__

__METHOD__

__NAMESPACE__

ClassName::class

Summary

- A data type is the classification of data based on its attributes.
- PHP is a loosely typed language which means that it does not require defining variables with types. Instead, PHP analyzes given attributes or values and determines appropriate data type.
- There are different data types, mainly Integer, Float, String, Boolean, and so on.
- PHP also supports compound types such as arrays and objects.
- PHP has many functions related to Strings, Numbers, NaN, Math, and so on.
- In PHP, a constant is an identifier (name) for a simple value and its value constant cannot be changed during the script execution.
- Magic constants are predefined constants in PHP and change their values with the context of their use.