**Week 2: JSS3, PHP AND SQL**

**Topics:**

**PHP**: *Install, Syntax, Comments, Variable, Echo/Print, Data Type, String*

**SQL**: *Syntax, Select, Select Distinct*

**Acronym:**

PHP: Hypertext Preprocessor

**Install**

Php is used in backend development of apps.

PHP is a server scripting language, and a powerful tool for making dynamic and interactive Web pages.

PHP code is executed on the server and so we would install a web server on our system for php.

To do so, download a local server into your system. Xampp, mampp or wampp

**Syntax**

Syntax refers to the rules that define the structure of a language.

**Example**:

# Comments

Comments can be used to explain php code.

Comments can be used to make the code more readable.

Comments can be used to prevent execution when testing code.

Example:

## Variables

Variables are containers for storing data values.

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

**Example**:

**Print and Echo Statements**

With PHP, there are two basic ways to get output: echo and print.

In this tutorial we use echo or print in almost every example. So, this chapter contains a little more info about those two output statements.

echo and print are more or less the same. They are both used to output data to the screen.

The differences are small: echo has no return value while print has a return value of 1 so it can be used in expressions. echo can take multiple parameters (although such usage is rare) while print can take one argument. echo is marginally faster than print.

Example:

**PHP Data Types**

Variables can store data of different types, and different data types can do different things.

PHP supports the following data types:

* String
* Integer
* Float (floating point numbers - also called double)
* Boolean
* Array
* Object
* NULL
* Resource

**PHP Object**

Classes and objects are the two main aspects of object-oriented programming.

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

When the individual objects are created, they inherit all the properties and behaviors from the class, but each object will have different values for the properties.

Let's assume we have a class named Car. A Car can have properties like model, color, etc. We can define variables like $model, $color, and so on, to hold the values of these properties.

When the individual objects (Volvo, BMW, Toyota, etc.) are created, they inherit all the properties and behaviors from the class, but each object will have different values for the properties.

If you create a \_\_construct() function, PHP will automatically call this function when you create an object from a class.

Example:

<?php

class Car {  
  public $color;  
  public $model;  
  public function \_\_construct($color, $model) {  
    $this->color = $color;  
    $this->model = $model;  
  }  
  public function message() {  
    return "My car is a " . $this->color . " " . $this->model . "!";  
  }  
}  
  
$myCar = new Car("black", "Volvo");  
echo $myCar -> message();  
echo "<br>";  
$myCar = new Car("red", "Toyota");  
echo $myCar -> message();  
?>

**STRING**

A string is a sequence of characters, like "Hello world!".

## PHP String Functions

In this chapter we will look at some commonly used functions to manipulate strings.

## Example: strlen(), str\_word\_count(),strrev(), strpos(),str\_replace()

**Class Work**

Create a class that does basic operations where each operation has a function representing an operation

Create the class object and pass the parameters for evaluation

Display your result

**Assignment**

Create a class that does percentage and square root operations where each operation has a function representing an operation

Create the class object and parameters for evaluation

Display your result

**Recourses:**

<https://www.geeksforgeeks.org/php-string-functions-complete-reference/>

**SQL**

SQL is a standard language for storing, manipulating and retrieving data in databases.

SQL stands for Structured Query Language

Data stored in database are actually stored in a table

Every table is broken up into smaller entities called fields. The fields in the Customers table consist of CustomerID, CustomerName, ContactName, Address, City, PostalCode and Country. A field is a column in a table that is designed to maintain specific information about every record in the table.

A record, also called a row, is each individual entry that exists in a table. A record is a horizontal entity in a table.

A column is a vertical entity in a table that contains all information associated with a specific field in a table.

**Syntax**

A database most often contains one or more tables. Each table is identified by a name (e.g. "students" or "staff"). Tables contain records (rows) with data.

The following SQL statement selects all the records in the "students" table:

SELECT \* FROM students;

## The SQL SELECT Statement

The SELECT statement is used to select data from a database.

The data returned is stored in a result table, called the result-set.

SELECT column1,column2,FROM table\_name;

## The SQL SELECT DISTINCT Statement

The SELECT DISTINCT statement is used to return only distinct (different) values.

Inside a table, a column often contains many duplicate values; and sometimes you only want to list the different (distinct) values.

SELECT DISTINCT column1,column2, FROM table\_name;

**Class Work**

Create a table called class\_students

Add table columns as follows: id, student\_name, class\_name, age, gender

Select from the table and display your result

**Assignment**

Create a table called academic\_staff

Add table columns as follows: id, staff\_name, subject\_teacher, age, gender

Select from the table and display your result

**Resources:**

https://www.youtube.com/watch?v=bEtnYWuo2Bw