ICT726 Web Development

Tutorial 7
PHP Classes and Objects

Overview

- Understand the concepts of classes and objects in PHP.
- Writing codes to create classes and objects in PHP.
- Understand the concept of Inheritance in PHP.
- Understand the concept of abstract classes.

Guidelines

Start by putting everything into a folder named "ict726_tutorial7".

Note: Since absolute links will only work on your computer, we recommend checking your website to make sure all the links work and use the same structure on your home computer.

Exercise 1:

Create a class named **Car** with **name** and **year** as its properties. Create the class functions set_name(), get_name(), set_year(), and get_year(). These functions should be self-explanatory (e.g get_name gets the name and set_name sets the name of the car). Create an instance of your class with the object name, $ford. Set its name as Ford and the year as 2021.

Print the name and year by accessing the object's properties. Print using the format: Name - Year.

Exercise 2:

Create a class named **Car** with **name** and **year** as its properties. Create the class constructor a destructor functions. The constructor sets the name and year, while the destructor prints these properties using the format : Name - Year. Create an instance of your class with the object name, $ford with its name as Ford and year as 2021.

Exercise 3:

Create a class named **Car** with **name** and **year** as its properties. Within the Car class, create a constructor setting the name. Also create a method, printDetails that prints the following: "Car Name: <name of car>". Create a child class (extending the parent) and name it Ford. Override the methods of the parent class to take another parameter, country, and the method to print: "Car Name: <name of car> - Country: <country>". Create an instance of the child class with name = "Ford" ; country = "USA".

Exercise 4:

Using the constant, PI = 3.14, create a class(CircleArea) that has radius as its property with constructor and destructor functions. Creating an instance of the class as $r, the script should automatically display the calculated area of the circle with the radius $r. Test your script with $r = 5.

Exercise 5:

Create an abstract class named Fruit, with a constructor function that gets the name of the fruit and an abstract function, color, that prints the color of the fruit. Create 3 child classes extending the abstract class namely: Apple, Orange, Grape. In these child classes, define the color function so that it prints Apple is red for the Apple class, Orange is orange for the Orange class and Grape is purple for the Grape class.

Exercise 6:

You are asked to develop a Simple Library System as a Junior Web developer. You need to write the “book”, “library”, and “member” class.

1. The Book class stores the title and author of the book. The book class also have a method called “getInfo” that returns the book title and the author’s name.
2. The Library class hold all books in the library. You need to declare books as an array property of the library. Also, we should be able to add books to the library

by calling the method “add book” and display all books by calling a method “displayBooks.”

3. The member class store the member name and membership type. The member should be able to borrow the books, which would be added to member’s borrowed books array. We should be able to call the method “displayBorrowedBooks” to get the information on all the borrowed books.

Now write an index.php file to include all the classes stored in separate files. Create a few books and add them to the library. Create a few members and borrow a few books from the library. Display borrowed book of each member.

(***Note:*** *You don’t need to implement the logic of penalty, fine or remove the book from the library once the member borrowed it. This code is for practising the object-oriented concepts only)*

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