



College of Engineering, Construction & Living Sciences  
Bachelor of Information Technology  
IN607: Introductory Application Development Concepts  
Level 6, Credits 15  
**In-Class Activity: PHP Basics 2 Answers**

**Problem 1:**

```
<?php
class Cat {
    private $name;
    private $age;
    private $breed;

    public function __construct($name, $age, $breed) {
        $this->name = $name;
        $this->age = $age;
        $this->breed = $breed;
    }

    public function set_name($name) {
        $this->name = $name;
    }

    public function get_name() {
        return $this->name;
    }

    public function set_age($age) {
        $this->age = $age;
    }

    public function get_age() {
        return $this->age;
    }

    public function set_breed($breed) {
        $this->breed = $breed;
    }
}
```

```
    }

    public function get_breed() {
        return $this->breed;
    }

    public function __toString() {
        return "My " . $this->breed . " 's name is "
            . $this->name . ". S/he is " . $this->age . " year(s) old.";
    }
}

$cat_one = new Cat("Ralph", 12, "Abyssinian");
$cat_two = new Cat("Leo", 9, "Birman");
$cat_one->set_name("Fido");
$cat_one->set_age(10);
$cat_two->set_breed("American Bobtail");
echo $cat_one;
echo $cat_two;

?>
```

## Problem 2:

```
<?php
class Employee {
    protected $first_name;
    protected $last_name;
    protected $salary;

    public function __construct($first_name, $last_name, $salary) {
        $this->first_name = $first_name;
        $this->last_name = $last_name;
        $this->salary = $salary;
    }

    public function __toString() {
        return $this->first_name . " " . $this->last_name;
    }
}

class SoftwareDeveloper extends Employee {
    public function __construct($first_name, $last_name, $salary, $prog_lang) {
        $this->first_name = $first_name;
        $this->last_name = $last_name;
        $this->salary = $salary;
        $this->prog_lang = $prog_lang;
    }
}

class AgileCoach extends Employee {
    public function __construct($first_name, $last_name, $salary, $employees) {
        $this->first_name = $first_name;
        $this->last_name = $last_name;
        $this->salary = $salary;
        $this->employees = $employees;
    }
}
```

```
    }

    public function add($employee) {
        array_push($this->employees, $employee);
    }

    public function remove($employee) {
        $key = array_search($employee, $this->employees);
        if ($key !== false) {
            unset($this->employees[$key]);
        }
    }

    public function search($employee) {
        $key = array_search($employee, $this->employees);
        if ($key !== false) {
            echo $employee . " found" . "<br>";
        } else {
            echo $employee . " not found" . "<br>";
        }
    }

    public function show_all() {
        foreach($this->employees as $employee) {
            echo $employee . "<br>";
        }
    }
}

$sft_dev_one = new SoftwareDeveloper("Alfredo", "Boyle", 50000, "C#");
$sft_dev_two = new SoftwareDeveloper("Malik", "Martin", 55000, "JavaScript");
$sft_dev_three = new SoftwareDeveloper("Livia", "Martin", 75000, 'Kotlin');
$agile_coach = new AgileCoach("Lillian", "Cunningham", 100000, array($sft_dev_one, $sft_dev_two));
$agile_coach->add($sft_dev_three);
$agile_coach->remove($sft_dev_one);
$agile_coach->show_all();
$agile_coach->search($sft_dev_one);
$agile_coach->search($sft_dev_three);
?>
```

### Problem 3:

```
<?php
class Language {
    public function good_morning() {
        throw new Exception("good_morning not implemented");
    }
}

class Maori extends Language {
    public function good_morning() {
        echo "Morena";
    }
}
```

```
class Spanish extends Language {
    public function good_morning() {
        echo "Hola";
    }
}

class German extends Language {
    public function good_morning() {
        echo "Guten Morgen";
    }
}

$maori = new Maori();
$spanish = new Spanish();
$german = new German();
$maori->good_morning();
$spanish->good_morning();
$german->good_morning();
?>
```

#### Problem 4:

This is an okay solution, but we can limit the size of our **stack**. Also, there is an absence of error checking, in particular, when pushing & popping to & from the **stack**.

```
<?php
class Stack {
    private $stack;
    private $limit;

    public function __construct() {
        $this->stack = array();
        $this->limit = $limit;
    }

    public function push($item) {
        // Okay solution
        array_unshift($this->stack, $item);

        // Better solution
        if (count($this->stack) < $this->limit) {
            array_unshift($this->stack, $item);
        } else {
            throw new RuntimeException("The stack is full. You can not add an item.");
        }
    }

    public function pop() {
        // Okay solution
        return array_shift($this->stack);

        // Better solution
        if ($this->is_empty()) {
            throw new RuntimeException("The stack is empty. You can not remove a item.");
        } else {
            return array_shift($this->stack);
        }
    }
}
```

```
    }
}

public function peek() {
    return current($this->stack);
}

public function is_empty() {
    return empty($this->stack);
}

public function size() {
    return count($this->stack);
}

public function show_all() {
    foreach($this->stack as $item) {
        echo $item . "<br>";
    }
}

public function __toString() {
    return $this->stack;
}
}

$stack = new Stack();
$stack->push("Introductory App Dev Concepts");
$stack->push("Intermediate App Dev Concepts");
$stack->push("Advanced App Dev Concepts");
$stack->pop();
$stack->show_all();
echo $stack->peek() . " is at the top of the stack" . "<br>";
echo "There are " . $stack->size() . " item(s) in the stack"
?>
```

### Problem 5:

```
<?php
interface App {
    public function login();
    public function register();
    public function logout();
}

class Facebook implements App {
    public function __construct($email, $password, $username) {
        $this->email = $email;
        $this->password = $password;
        $this->username = $username;
    }

    public function login() {
        echo "Logged in with the email - $this->email.";
    }
}
```

```
public function register() {
    echo "Registered with the email and username - $this->email and $this->username.";
}

public function logout() {
    echo "User logged out.";
}
}

$fb_user = new Facebook("john.doe@gmail.com", "P@ssw0rd123", "john.doe");

$fb_user->login() . "<br>";
$fb_user->register() . "<br>";
$fb_user->logout() . "<br>";
?>
```