



Web Programming with The Laravel Framework

Assignment 1 – Sommer Semester 2022

Tübingen, 4. Mai 2022

Handin Please submit this homework by email to Steven Lolong (steven.lolong@uni-tuebingen.de) by Thursday, 12 May 2022, before 24:00.

Task 1: Control Statement

1.1 Create a program for grade converter from percentage to point using *if-else* or *if-elseif-else*. For example, if the grade is 89, the program will convert it to 1.7 and show it to the user. Please use the webform to get the grade from the user. (see the Table conversion below). (5 points)

Tabelle 1: Grading system

note	percentage (%)
1.0	95 - 100
1.3	90 - 94
1.7	85 - 89
2.0	80 - 84
2.3	75 - 79
2.7	70 - 74
3.0	65 - 69
3.3	60 - 64
3.7	55 - 59
4.0	50 - 54
5.0	0 - 49

1.2 Refer to task 1.1, please make it using switch-case. (5 points)

Task 2: Looping

```

1 for($i = 1; $i <= 5; $i++){
2     for($j = 1; $j <= $i; $j++){
3         print "$j";
4     }

```

```

5  print "\n";
6  }

```

The output of the code is:

```

1  1
2  12
3  123
4  1234
5  12345

```

2.1 Refer to example above, please make a program (using terminal-based not web-based) using 'for' to print. (5 points)

```

1  *****
2  *****
3  *****
4  *****
5  *****

```

2.2 Please solve problem in 2.1 using 'do-while' (using terminal-based not web-based). (5 points)

Task 3: Function and Arrays

3.1 Create a concatenation function and name it 'fun' for the array, which is the function will have two parameters for two arrays and return the result as an array. These two parameters must have the same length. If not, then the function will return an error string notification. (3 points)

```

1  $param1 = array("hello", "halo", "foo");
2  $param2 = array("world", "steven", "bar");
3
4  function fun($p1, $p2){
5  ...
6  }
7  $result = fun($param1, $param2);

```

The content of \$result is an array: ("hello world", "halo steven", "foo bar").

3.2 Create an extractor function to print the content of arrays in problem 3.1. Ex. (3 points)

```

1  funExtractor($result) // will print
2  Content_1 = "hello world"
3  Content_2 = "halo steven"
4  Content_3 = "foo bar"

```

Task 4: Give me more!

4.1 The text-to-speech engine can only read text, so it will be a problem when the input is a number. Could you help the developer create a function to get a number and convert it into text? The maximum value of the number is 100000. (10 points)

Ex.: if the user key in 110, the function will take 110 as a parameter and convert it into text: one hundred ten. If the input exceeds 100000, the function will show "maximum exceeded".

4.2 Imagine working as a junior programmer in a Multimedia Company. The first project is to create a program to display a text-based triangle using the looping (for or while or do-while) and the control statement (if-else or switch-case). The application will take the number of rows from the user, and the maximum number of rows is 10. So for an example the user input five, then the output will be like: (10 points).

```
1 *****
2  *****
3   *****
4    *****
5     *****
```

Task 5: Object and Inheritance

All tasks below use a terminal-based environment!

5.1 Object

An Enterprise Web Solution (EWS) is a software company that provides web application solutions. Currently, EWS has a project to design a module program for banking. Therefore, the first task is to design a module for the customer. This module must contain these property:

Data member:

- Account number
- Name of the depositor
- Last balance

Member function

- deposit money to depositor's account, this function will take input from the user (amount) and add it to the last balance.
- withdraws money from depositor's account; this function will take input from the user (amount) and deduct the last balance with this amount.
- display name and balance, this function will print the name and the last balance to the user.

As a junior programmer in EWS, your task is to create an object in PHP for the feature above using class! (5 points)

5.2 Object's Application

Build a test case for the object above with three customers. To make it easy for iteration, please make the object's instance an array. Ex.: (3 points)

```
$arr[0] = new abc()
```

```
$arr[1] = new abc()
```

5.3 Inheritance

EWS also need to extend the module for customer to run on ATMs. New features for ATMs are:

Data:

- last transaction date
- password

Function:

- ask for password before transaction
- change password

It needs to create an object for ATM and inherit from the customer object. Add new feature above to ATM object. Please provide a test case for this new object! (5 points)

Bonus - Exploring the Object!

Bonus 1: Abstract and Interface (8 points)

1. When you need to use abstract class then interface? (1 points)
2. What is the difference of abstract class and interface? (1 points)
3. Write an example of abstract class and how to implement it! (3 points)
4. Write an example of interface and how to to implement it! (3 points)

Bonus 2: Multiple Inheritance (5 points)

Please complete the source code below!

```

1 <?php
2 (1)..... Log{
3     // $msg = message in string format
4     // $level: 1 = high, 2 = normal, 3 = low
5     public function logIt($msg, $level);
6 }
7 abstract class LogData (2)..... Log{
8     public $msg, $lvl;
9     public (3)..... (4)..... logIt($msg, $level);
10 }
11
12 class Logger (6)..... LogData{
13
14     public function logIt($msg, $level){
15         $this(7).....msg = $msg;
16         $this(8).....lvl = $level;
17         echo "Successfull write " . $this(9).....msg . " with level " .
18             $this(10).....level;
19     }
20 }
21
22 $logger = new Logger();
23 $logger->logIt("hello world!", 2);
24 ?>

```

Bonus 3: Traits (5 points)

Rather than using multilevel inheritance above (Bonus 2), you can use 'traits' to write multiple inheritances for Logger in Bonus 2. Please write two 'traits' for Log and LogData and use them in Logger. Do not write the same name for function in two different traits!