COMP 1006 Midterm Winter 2023

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1) (10 marks) Write a function named abs_val that returns the absolute value of an int passed to it by value. You cannot use the abs() function library.

```
function abs_val($value) {
return ($value * ($value>0) - ($value<0));

};
```

echo abs_val(05);

Result: 5

2) (10 marks) Write a rangeSum function which

- Prompt the user for two positive integers a and b. (asks for input)

- Write a separate function, **rangeSum** to compute the sum of the consecutive integers from a to b inclusive (that includes both a and b).

- The rangeSum function should only calculate the sum. It should print a, b and sum.

- Example: a = 5, b = 7. Output is a is 5, b is 7, sum is 18.

```
$firstNumber = (int)readline('Enter the first number: ');

$secondNumber = (int)readline('Enter the second number: ')

function rangeSum() {

}
```

3) Short answers and theoretical questions (2 marks each)

a) What initial value should be assigned to **b** at line **6** so that the output of this program is **10**?

```
<?php
 $sum=0; $n=1;
 $b;


 b=??;
```

```
 while(n<b)

{

   $sum += $n;

   $n += 1;

}

 echo $sum;

?>
```

Line 6 which contains the value of B should be 11.

3b) What is the function prototype to declare a reference to the int "numPlayers"?

function funcProto(&$numPlayers) {

}

3c) What is the purpose of a pointer and when would you use it? (Describe with an example)

Used in the explanation before for the function prototype question, pointers can store the legitimate value of a variable by reference, not by a duplication sent to the function by the user.

To make it easier to understand, let's create a variable called "Z" and let's divide it.

$z = 50;

Function divideFunc(&$number) {

$number /= 3;

}

divideFunc($z);

echo $z;

The result will actually be 16. (Truncated by me. Not by code. Just for explanation.)

Legitimate value: 16.666666666667

3d) What is the difference between an Array and Arraylist?

None, they both do the same actions in containing values, different datatypes for each different arrays (if applicable, one array could be string, etc).

3e) What is the difference between public, static and void?

Public is meaning public and widely available anywhere in the code.

Static embodies itself once in the program. And **void** does not usually return values. So, methods that don't require values to be returned, should be used with void.