

## 420-LCU-05 Programming in Python - Lab 3

February 7<sup>th</sup>, 2022

**Identification section:** This section must be either in a comment, with a '#' preceding each line, or enclosed within triple quotes ("""). The grader and I need this section for the accurate processing of your lab. This section appears on top of all files you submit through Omnivox.

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Your Name and ID

420-LCU Computer Programming Lab 3

S. Hilal, instructor

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**Submission:** Submit your Lab 3 in a single Python file with the extension .py. Your file will include the code for questions 1-6. Include answers to questions 7-8 in comment (s). Be sure to carefully read and answer all lab questions. An important part of lab exercises is to correctly follow the instructions as closely as possible.

**Programming questions (1-6):** Each is a short program of about 3-7 lines.

### Objectives for this lab:

- Basic Interactive programming using *input* function
- Unary and Binary operations.
- Using built-in functions: **print()**, **input()**, **int()**, **float()**, **bin()**, **hex()**
- Writing simple expressions and using while loop.

**Note:** Each item below is a separate question (program). Answer all questions in one python file (Lab3.py). Separate by comments. E.g. # Q1

- 1- Ask the user to enter 2 integers and 1 float, print out the sum and the product of all 3 numbers.

**Hint:** Write 3 separate input function calls to get the 3 numbers. Remember that you need to use the appropriate functions to set the correct type of each input before you do the calculations.

**Question:** What result do you get if you enter an integer value for the 3<sup>rd</sup> number? Write your answer in a comment.

**Sample Program Run:**

Enter an integer: 4

Enter an integer: 8

Enter a float: 9.2

You have entered: 4, 8, and 9.2

The sum is: 21.2 and the product is: 294.4

- 2- Ask the user to enter an integer y between 12 and 20. Print the number in decimal, binary and hex.

**Sample output:**

Enter an integer between 12 and 20: 15

The number in decimal is: 15

The number in binary is: 0b1111

The number in hex is: 0xf

- 3- Ask the user to enter a number  $z$  between 3 and 6. Compute the sum of cubes from 1 to  $z$ .  
Example:  $z=5$ , you will calculate and print the sum for  $1^3+2^3+3^3+4^3+5^3$ . Your program works for any integer  $z$ . **Hint:** Use a while loop.  
**Sample output for  $z=4$ :** sum of cubes for 4 = 100
- 4- Write a program that asks the user to enter an integer  $n$  (positive, negative or zero). The program checks if the number is positive, negative or zero and displays an appropriate message.
- 5- Ask the user to enter an integer  $n$ . Your program checks if  $n$  is even or odd and prints an appropriate message. Test your programs at least 4 times with even and odd numbers.
- 6- At a particular school, letter grades correspond to numeric scores according to these rules:

Raw Score	Letter Grade
93 or above	A
From 84 to 92 inclusive	B
From 75 to 83 inclusive	C
From 60 to 74 inclusive	D
Below 60	F

Write a program that asks the user to enter a numeric integer score (0-100) and print out the letter grade. Test your program for the following grades: 0, 55, 60, 74, 97, and 87.

**Sample output for numeric grade 75:**

Your numeric grade is 75

Your letter grade is C

- 7- Consider the following 2 program statements: **Choose an answer without using IDLE** then verify.  
Write both answers (without IDLE and after verification) in a comment.

```
tmp = float(19 // 5)
```

```
val = tmp * 3 % 5
```

**What value would be stored in val?**

a. 4   b. 4.0   c. 9   d. 9.0

- 8- What would be printed by each of the following Python program: **Please answer the question first.**  
Write your answer in a comment. Then type each program in a python file and find-out the answer.  
You can create 2 files temp1.py and temp2.py but no need to submit them. Use a comment line to answer the question manual before and after your ran the programs. Any difference?

Program 1	Program 1
<pre>temp = 38 if temp &gt;= 37:     print("too hot") elif temp &gt;= 28:     print("just right") else:     print("too cold")</pre>	<pre>temp = 38 if temp &gt;= 37:     print("too hot") if temp &gt;= 28:     print("just right") if temp &lt; 28:     print("too cold")</pre>