# Introduction to Programming with Python

## Weekly Programming Assignment – Week 2

*All solution files [Exercises 1 – 5] must be submitted at CodeGrade enabled Link in Moodle for grading on or before 21st of September 2021 at 11:59 PM*

### Exercise 1

Write a program that asks users to input the string and number of times **(n)** that given string input to be displayed. Then your code should display the given string **n** times. Here is the sample run:

```
>>> %Run Ex1.py

Enter the string you want to display:Hebut_LUT
Number of times for display:4
Hebut_LUTHebut_LUTHebut_LUTHebut_LUT
```

Attention: Should not use more than one print()statements.

### Exercise 2

Body Mass Index (BMI) is a measure of health on weight. It can be calculated by taking your weight in kilograms and dividing by the square of your height in meters. Write a program that prompts the user to enter a weight in pounds **(float)** and height in inches **(int)** and display the **BMI**. Note that one pound is **0.45359237** kilograms, and one inch is **0.0254** meters.

```
>>> %Run Ex2.py

Enter your weight in pounds:90.5
Enter your height in inches:50
your BMI is: 25.451118782937566
```

Attention: Should not use any type()conversion functions.

### Exercise 3

Write a program that asks a user to input a number between **100 and 999** (3 digits-integer only) and adds all the digits in the integer. For example: if the user input is 932 the sum of all its digits is 14.

```
>>> %Run Ex3.py

Enter any 3 digit number between 100 and 999:100
1
>>> %Run Ex3.py

Enter any 3 digit number between 100 and 999:456
15
```

Hint: (% and or // and or / and or other arithmetic operators)
Attention: Should not use **string handling functions**

**Exercise 4**

Write a program to measure the wind-chill temperature by using outside **temperature (t)** and **wind speed** in miles per hour **(v)** as inputs. The program should prompt the user to enter a temperature between -58°F and 41°F and a wind speed greater than or equal to **2** and displays the wind-chill temperature (but no need to check). Here is a sample run:

The formula is given as follows:

$$twc = 35.74 + 0.6215t - 35.75v^{0.16} + 0.4275tv^{0.16}$$

where **t** is the outside temperature measured in degrees Fahrenheit and **v** is the speed measured in miles per hour is the wind-chill temperature. The formula cannot be used for wind speeds below 2 mph or temperatures below or above 41°F. However, **input checking is not necessary**. That is, assume that user inputs are ok. Here is the sample run:

```
Enter the temperature in Fahrenheit:5.3
Enter the wind speed miles in hours:6
The wind chill index is: -5.567068455881625
```

Hint: ( Use** or pow(x, y) for exponential function → $x^y$)

**Exercise 5**

Write a program that prompts the user to enter patients' white blood cells types **(WBS)** that contains the different types of **N(Neutrophils), L (Lymphocytes),** and **M(Monocytes)** properties. The occurrence of each property in the given WBS is to be computed and displayed the proportions of each in percentage. However, if the user input is empty or not entered in capital letters (should be checked separately) then your program must display appropriate error messages. Here is the sample run:

```
Python 3.7.9 (bundled)
>>> %Run Exercise5.py
  Enter the WBS types:
  no input or empty string
>>> %Run Exercise5.py
  Enter the WBS types: nnNL
  Input is not in uppercase
>>> %Run Exercise5.py
  Enter the WBS types: LLMMNMLLMN
  Proportion of N:  20 percent
  Proportion of L:  40 percent
  Proportion of M:  40 percent
```

Hint: Need isupper() and **if..elif..else** + other string handling functions : refer lecture notes + Learning resources – Python Programming manual page no. 78 and other resources.

| Exercise / task Number | Codegrade link_Moodle for file solution files upload | Points / Marks |
|---|---|---|
| 1 | Exercise1_Week 2 | 5 |
| 2 | Exercise2_Week 2 | 5 |
| 3 | Exercise3_Week 2 | 10 |
| 4 | Exercise4_Week 2 | 10 |
| 5 | Exercise5_Week 2 | 20 |