COMP1811 Lab1.01
Python Basics – Variables, primitive data types and operations

Aim

To practice using and coding Python variables, built-in data types, and basic operations.

Tasks

Using pair programming, complete the Python coding exercises below. You will need to download and unzip the code needed for these exercises.

Attempt all exercises during your lab session and ask your tutor if you are stuck. Don't worry if you can't do some of your exercises. Give them a try first, then ask your tutor for help showing/explaining to them your attempts and highlighting which part(s) is(are) not clear.

It is essential for your learning to document what you've done and outline relevant points for future reference. Upload your work to the COMP1811 – lab 1.01 upload area on Moodle for future reference. **Discuss your work with your tutor before you leave**. **Remember to check your code with others in your group before you leave and find positive ways in which both yours and theirs could be improved**.

Python Coding Exercises

a. Exercise 0

i. In PyCharm, create a new project in a folder called COMP1811 folder on a USB or your University One Drive and call it **Week_1_Variables**.

ii. Unzip the code given to you on Moodle for today's lab and copy all the *.py files unzipped to the root folder of the project you just created - Week_1_Variables.

b. Exercise 1

Go through and run the Python (.py) files with prefix numbers from 01 to 05 you just copied. Examine thecode and try to understand what each program does.

c. Exercise 2

Make a copy of 06Addition and save it to 07Multiplication. Now modify it to do multiplication.

d. Exercise 3

Make a copy of 08Subtraction and save it to 09Division, and then modify it to do division. The code currently has 6 variables, but we want to reduce that number. Without looking at the lecture notes:

i. Modify the code to eliminate some of them.

ii. Modify the code to eliminate all of them. [Harder]

e. Exercise 4

i. Create a new Python file in your PyCharm project called **exercise_4** or **pool_fill**.

ii. In **exercise_4**/**pool_fill**, write Python code from scratch to implement a solution to the problem in e.iii below.
Start your code with a block comment that includes your name and student ID as the author of the program followed by the date the program is created and a brief paragraph briefly describing what the code in this file does.

iii. The problem: "You're filling a pool with water and have two hoses – one green and the other red.The green hose fills the pool in 1.5 hours, and the red hose fills it in 1.2 hours. You want to speed up the process by using both hoses at once.
How long will it take to fill the pool using both hoses, in minutes?"

Note: Remember to comment your code and to use meaningful variable names.
It is also standard professional programming practice to include a block comment at the top of any code file you create. As you write more and more code and update it, you can add information relating to the version number of the program and the date the code was last updated.