JC1001 Practical / Lab 2 – Performing calculations in Python

In this practical, we will continue to work on creating and running simple python programs which take users' input and perform various, different calculations. The goal of this practical is to give you more experience with writing simple programs that involve using various operators to perform different calculations and return the result to the user.

We suggest you created a new folder for this practical session and name each file using a suitable naming convention, for example, for the first exercise, p2-Exercise-1.py indicates practical 2 Exercise 1.

1) Write a program which asks the user for their name and age and then calculates the year of their birth and returns this information to the user.

2) Write a program which converts miles into kilometres. Your program should first ask the user to enter a distance in miles to be converted and you should then return the converted distance in kilometres. Include in the output, the original value in miles that has been converted into kilometres. (1 kilometre is approximately 0.6214 miles)

3) Write a program which converts temperature in degrees Fahrenheit to degrees Celsius. Your program should include in the output, the original value in Fahrenheit that has been converted into degrees Celsius. (a simple way to perform this calculation is to deduct 32 from the Fahrenheit temperature, multiply by 5 and then divide by 9).

4) Write a program that reverses the calculation performed in exercise 4.

5) Write a program that asks the user for the length of the side of a square and then calculates the area and perimeter and returns these values to the user.

6) The speed of light c is approximately 3×10^8meters per second. Write a program that asks the user to input a time in seconds and returns the distance that light travels in this time. Your program should output the distance in meters, kilometres, and miles.

7) Write a program that first asks the user to enter a duration in days, hours, minutes, and seconds. Use a similar approach to exercise 6, where first the program will ask for the duration in days, followed by hours, minutes etc. Your program should then return the total number of seconds of the full duration entered.

8) Write a program that reverses the calculation performed in exercise 7, where the user enters a duration in seconds and the duration is returned to the user in days, hours, minutes, and seconds, with each unit of time printed on a separate line.

9) Review your solutions for the exercises in this practical and in practical 2. Add comments to your code and check for consistency in how you have organised your code. Ask yourself, how easy would it be to modify or extend your program? Are your variables named suitably?