L2 – Functions

In lesson 1 we learnt:

* How to use the interactive Python shell to do calculations on different types of values and types using a variety of operators
* How to use Pythons built-in functions int(), float(), str(), type(), len(), input() and print()
* What a variable is
* How to assign values to variables
* How to combine values and variables using operators, functions and object methods to write increasingly complex Python statements
* Objects in Python contain data and code. The various pieces of code associated with an object are accessed using an object\_name.method\_name() style of statement
* Strings are objects and have large number of methods
* Strings are indexable objects
* How to save our Python programs for future re-use

In this lesson we will learn:

* More about what a function is
* How to create our own functions
* How to use and re-use functions in our programs
* How to import functions from Python libraries into our own programs

# How to save our Python programs for future re-use

So far we have only used the interactive Python shell

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This is OK for getting started but having to type in the same code every time we want Python to do something is obviously not best. It would be far better if we could save our programs and then reload them into Python each time we needed to work with them. Fortunately the developers of Python IDLE have made this very easy.

First though, let’s organise where we are going to save our work on this module.

Create a folder in your personal file space called LN6209. Then within that folder create a subfolder called w2. [You can call these folders whatever you like but for reasons I will explain later please start the folder name with a letter, only use letters, numbers and underscores in the name, and don’t leave any spaces in the name]

We will save all this lesson’s work in the folder LN6209\w2 (or whatever you called it)

Now start the Python shell, select the menu option file > new file

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This will open a file called ‘untitled’.

Now immediately save ‘untitled’ to LN6209\w2 with the filename ‘temp\_convert’.

Graphical user interface, text, application, email

Description automatically generated

Python IDLE will automatically add the correct file extension ‘.py’.

Write the two functions celsius\_to\_fahrenheit() and fahrenheit\_to\_celsius in the Python script temp\_convert.

Also add the two statements:

f2c = fahrenheit\_to\_celsius

c2f = celsius\_to\_fahrenheit

Both functions now have two names. Most of the time we will use the shortest name as that saves a lot of typing.

Run the program and test the functions work.

# How to use the built-in functions input() and print()

# What a function is

# How to create our own functions

# How to use and re-use functions in our programs

# How to import functions from Python libraries into our own programs