**Poynting’s Python Society**

**Aut4 2022 – While, For Loops and a bit of Logic**

Today, we want to get you to work through the first [Project Euler](https://projecteuler.net/archives) problems.

Project Euler is a website that *archives over 800 problems* of varying difficulty, that are intended to be solved on a computer. The puzzles start off nice and easy (finding factors, generating Fibonacci sequences etc.), but become increasingly difficult…

They provide really good practice *working with Python data types* (e.g. strings, lists, operators).

I can guarantee: *getting comfortable working with Python data types makes your life SOOOO much easier.*

If you practice working with the basic data types regularly, you’ll find the coding assignments much much easier later on.

We’d like you to try Problems 1, 2 and 4 – although you’re welcome (and encouraged to) work on these in your own time.

Here’s problem 1:

Graphical user interface, text, application, email

Description automatically generated

Nice and easy concept – no fucking way you’d solve this with pen and paper: *computers are useful!!!*

**General Tips:**

* Test your code in the console (in the bottom right of Spyder) before you execute your scripts!
* Keep pen and paper by you: learning Python is like learning a language; if you wanted to greet someone in Spanish – you’d have to know you’re going to say in English before you translate! Having pen and paper by you helps transform your intentions into commands you can write in Python
* For problem 1, remember the ‘mod’ operator % exists. E.g. 5%2=1 – it returns the REMAINDER of the division.
* For problem 4, remember that Python strings can be ‘indexed backwards’ by using [::-1]

Text

Description automatically generated with low confidence

As a reminder, here’s the syntax for while and for loops:

‘<variable>’ in square brackets, is just a placeholder for a temporary variable that can be used inside an indented code block. To write some executable code, replace <variable> and <iterable> with e.g. integer and range(1,10) – this will iterate through all the integers between 1 and 10. Note: it doesn’t matter what we use for <variable> - it could just be a letter e.g. j or even just an underscore: \_

A screenshot of a computer

Description automatically generated with medium confidence

For a while loop:

A screenshot of a computer

Description automatically generated with medium confidence

You’ll always enter the code block, so long as the <condition> evaluates to True. A possible condition could be number % 2 == 0, then so long as ‘number’ is an even number, then this will evaluate to True, and you’ll enter the code block!