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 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…

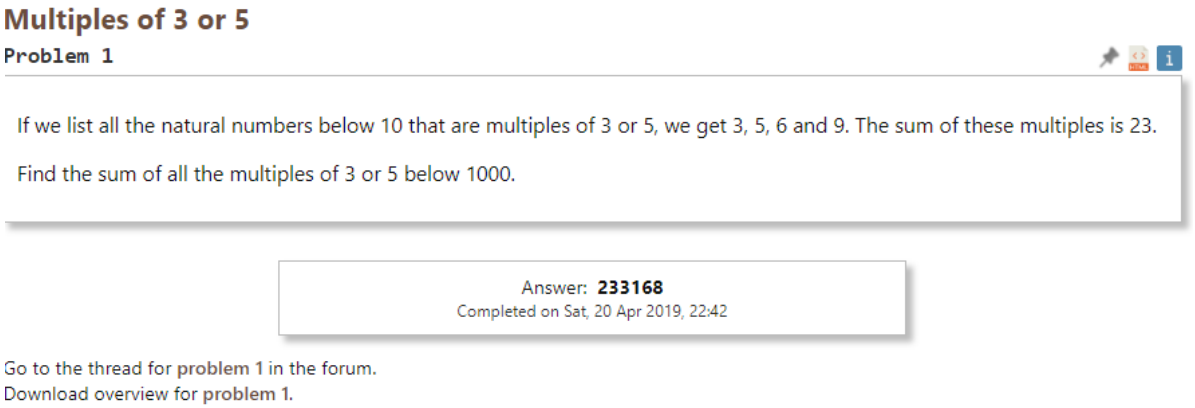
They provide really good practice *working with Python data types* (e.g. strings, lists, operators).

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:



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]

```
In [52]: myString = 'hello'

In [53]: myString[::-1]
Out[53]: 'olleh'

In [54]:
```

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: `_`

```
for <variable> in <iterable>:
    #### Code block here indented

# Leave the code block, going back to zero indentation
```

For a while loop:

```
while <condition>:
    ####
```

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!