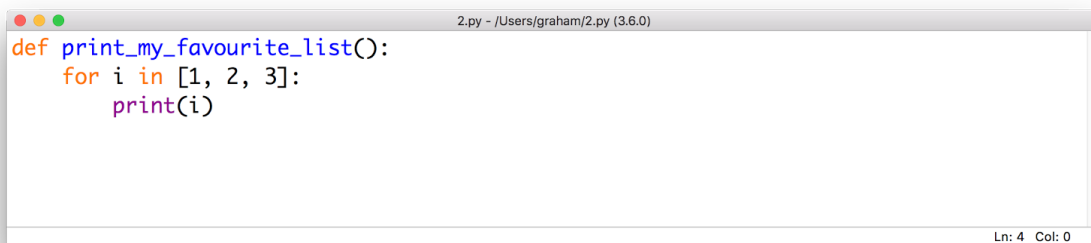


Solutions 2B

Summer 2017

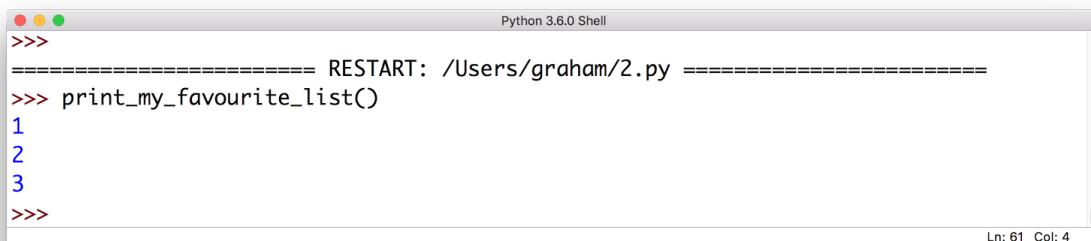
Task 1 - For Loops

This first task is designed to test the understanding of the distinction between print and return. The print function simply has the side effect of writing to the output, but return is intrinsic to function definitions.



```
2.py - /Users/graham/2.py (3.6.0)
def print_my_favourite_list():
    for i in [1, 2, 3]:
        print(i)
```

Ln: 4 Col: 0



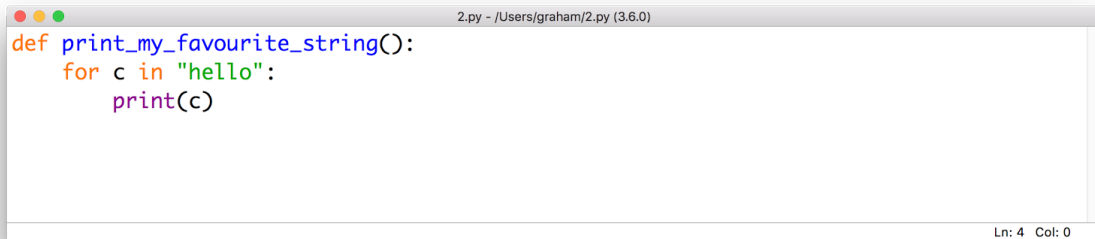
```
Python 3.6.0 Shell
>>>
===== RESTART: /Users/graham/2.py =====
>>> print_my_favourite_list()
1
2
3
>>>
```

Ln: 61 Col: 4

Task 2 - Strings

We can use for loops to iterate over the characters of a string. This task requires the modification of the solution to the previous task, replacing the list, with a string.

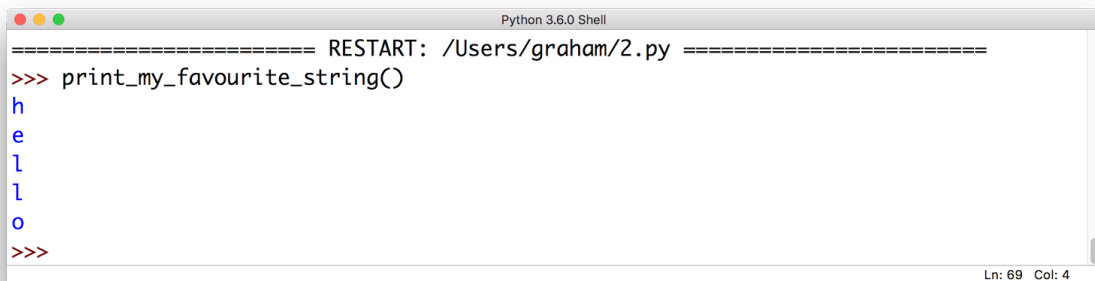
We say these two types are “iterable”.



```
2.py - /Users/graham/2.py (3.6.0)

def print_my_favourite_string():
    for c in "hello":
        print(c)

Ln: 4 Col: 0
```



```
Python 3.6.0 Shell

===== RESTART: /Users/graham/2.py =====
>>> print_my_favourite_string()
h
e
l
l
o
>>>

Ln: 69 Col: 4
```

Task 3 - The While Loop

The point of this task was to ensure pupils are able to read and understand programs containing while loops. They are required by the task to add a return statement outside of the body of the while loop.

```
2.py - /Users/graham/2.py (3.6.0)
def foo(n):
    while n > 1:
        n = n / 2
    return n
Ln: 5 Col: 0
```

```
Python 3.6.0 Shell
===== RESTART: /Users/graham/2.py =====
>>> foo(2)
1.0
>>> foo(3)
0.75
>>> foo(4)
1.0
>>> foo(5)
0.625
>>> foo(6)
0.75
>>> |
Ln: 88 Col: 4
```

Task 4 - Sums

This task requires pupils to compute the sum of the elements in a list. This can be done by track of the total seen so far.

```
2.py - /Users/graham/2.py (3.6.0)

def sum(ls):
    total = 0
    for el in ls:
        total += el
    return total

Ln: 7 Col: 0
```

```
Python 3.6.0 Shell

>>>
===== RESTART: /Users/graham/2.py =====
>>> sum([])
0
>>> sum([1, 2, 3])
6
>>> sum([3, -3])
0
>>> sum([-3, -10])
-13
>>>

Ln: 116 Col: 4
```

Task 5 - Maximum

Finally, we are tasked with writing a function that returns the maximum element in a given list of integers. This is similar to the previous task, but requires slightly more thought.

This can be done by for loop, and keeping track of a variable with the largest seen number, and returning that variable at the end.

```
2.py - /Users/graham/2.py (3.6.0)

def get_max(ls):
    largest = None
    for i in ls:
        if largest == None or i > largest:
            largest = i
    return largest

Ln: 8 Col: 0
```

```
Python 3.6.0 Shell

===== RESTART: /Users/graham/2.py =====
>>> get_max([])
>>> get_max([1, 2, 3])
3
>>> get_max([3, 2, 1])
3
>>> get_max([-3, -7, -10])
-3
>>> get_max([-6])
-6
>>>

Ln: 99 Col: 4
```