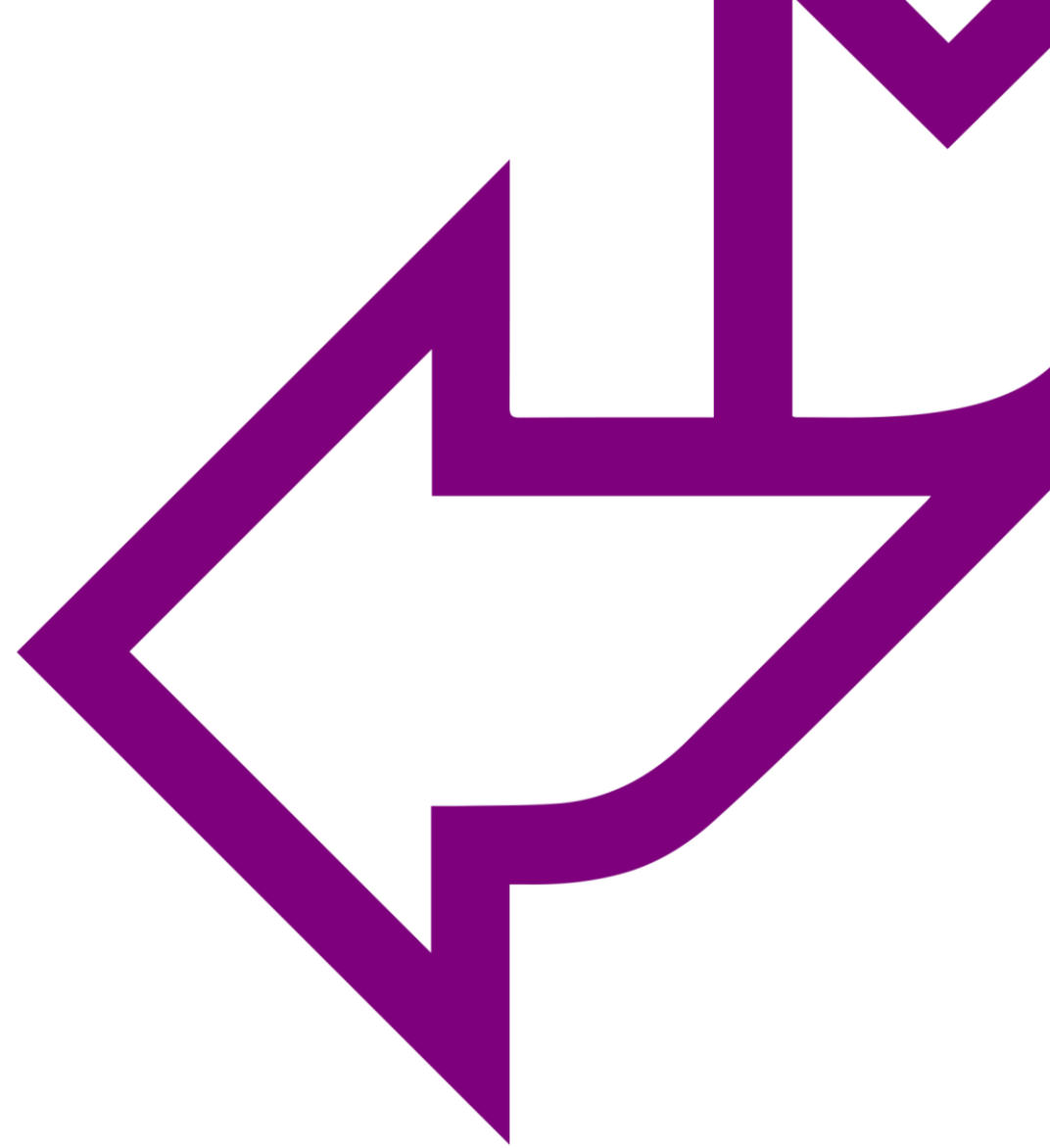




Control Flow - Selection

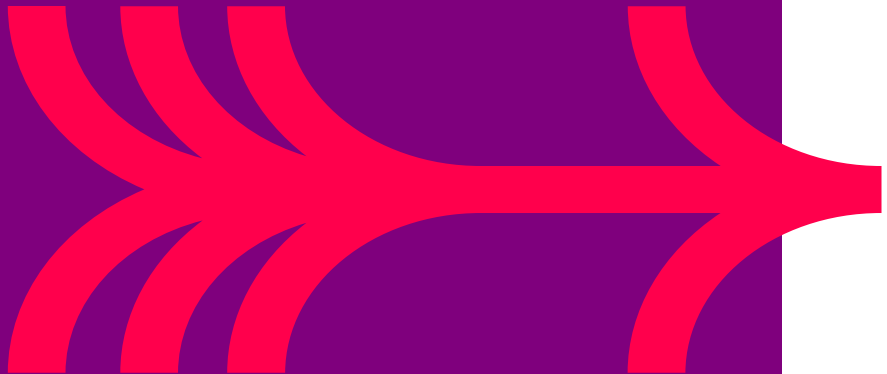




LESSON OBJECTIVES

In this chapter you'll learn about:

- Using iteration (loops) in Python
 - while
 - For
- Using the range() function



QA What is Control Flow?


It's for controlling the order we do things:

- Sequence
- Running code step by step, in order
- Selection
- Deciding *which* lines of code should run
- Iteration
- Doing the same thing many times, i.e., in a loop

QA Iteration – using while

```
x = 1
```

```
while x < 5:  
    print(x, "Hello World")  
    x = x + 1
```



```
1 Hello World  
2 Hello World  
3 Hello World  
4 Hello World  
Press any key to  
continue ...
```

QA Another While example

```
n = 1
```

```
While n <= 5:  
    print('*' * n)  
    n = n + 1
```

```
print('*' * n)
```

```
While n > 0:  
    n = n - 1  
    print('*' * n)
```

```
*  
**  
***  
****  
*****
```

```
*****
```

```
*****  
****  
***  
**  
*
```

What will **n** be after the while loop?

QA Break out!

- Use the **break** statement to end any loop


```
total = 0
answer = 'y'

while answer == 'y':
    total += int(input('Enter a number (1-10)'))

    if total >= 21:
        break

    answer = input('Get another number?')

print('Total is ', total)
```

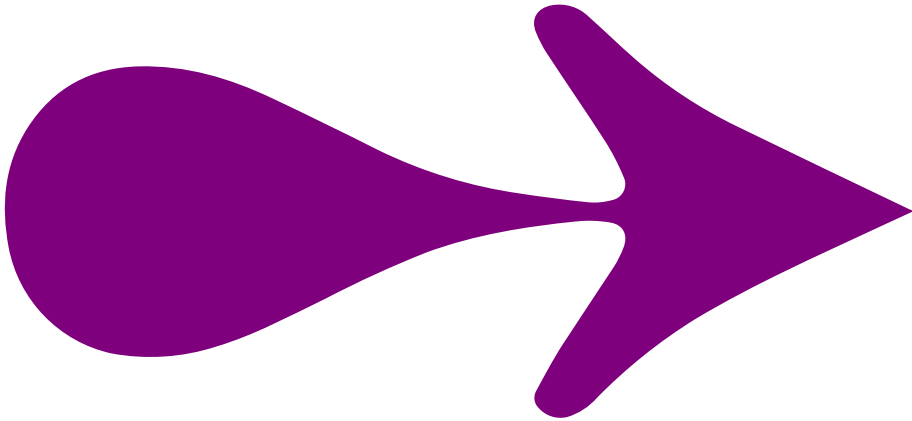




Part 2 – **for** loops

In this part you'll explore **for** loops in Python

But before studying **for** loops, let's have a look at the very useful **range** function.



The range function

- Generate a sequence of numbers

`range(5)` `0, 1, 2, 3, 4`

`range(1, 5)` `1, 2, 3, 4`

`range(5, 0, -1)` `5, 4, 3, 2, 1`

QA Iteration – For loops

```
for x in range(5):  
    print(x, "Hello World")
```

`range(5)` means
All the numbers
from 0 to 4

```
0 Hello  
World  
1 Hello  
World  
2 Hello  
World  
3 Hello  
World  
4 Hello  
World
```

QA For loops – using range

```
for x in range(2,5):  
    print(x, "Hello World")
```

All the numbers
from 2 to 4

```
2 Hello  
World  
3 Hello  
World  
4 Hello  
World
```

Python Fundamentals

In this chapter you learned about:

- **Using iteration (loops) in Python**
 - while
 - for
 - break
- **Using the range function**



Lab

- Please see your Exercise Guide
- **03-Iteration.docx**
- This lab has many tasks, see how many you can do!



FURTHER READING

- <https://www.python.org/>
- <https://www.python.org/dev/peps/pep-0008/#a-foolish-consistency-is-the-hobgoblin-of-little-minds>

