PYTHON

LESSON 2

CODE FIRST GIRLS

NANODEGREE → FOUNDATION MODULE

AGENDA

01 User input

02 Importing modules

03 For Loops

04 While Loops

05 Functions

USER INPUT

DEFINITION

- The input() function allows you to input data after the program has started running
- It allows user interaction with the program in ‘real-time’
- The input() always returns a string value!

EXAMPLE

```
name = input('What is your name? ')
print('Hello, {}'.format(name))
```

PYTHON MODULES

DEFINITION

- **Module:** Code that someone else has written that you can reuse in your programs

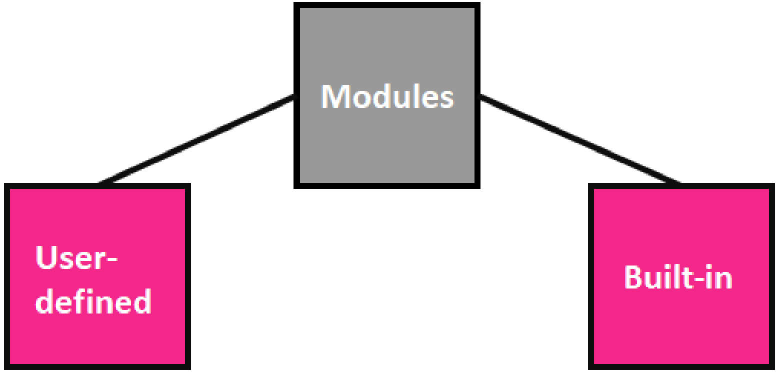
- Modules are imported into your Python programs:

import <name of the module>

also

from <name of the module> import <specific package name>

EXAMPLE



PYTHON MODULES

EXAMPLES

math --> mathematical functions

datetime --> date and time value manipulation

timeit --> time the execution of small blocks of Python code

re --> regular expressions (pattern search)

copy --> duplicating objects

- we would learn more about various modules throughout the course
- let's review some examples based on **datetime**

EXAMPLE

Python **datetime** package documentation:

https://docs.python.org/3/library/datetime.html

DATETIME

CHARACTER CODE EXAMPLES

- %a: Returns the first three characters of the weekday, e.g. Wed.
- %A: Returns the full name of the weekday, e.g. Wednesday.
- %B: Returns the full name of the month, e.g. September.
- %w: Returns the weekday as a number, from 0 to 6, with Sunday being 0.
- %m: Returns the month as a number, from 01 to 12.
- %p: Returns AM/PM for time.
- %f: Returns microsecond from 000000 to 999999.
- %Z: Returns the timezone.
- %Y: Returns the year in four digit format
- %b: Returns the first three characters of the month name.
- %d: Returns day of the month, from 1 to 31.
- %Y: Returns the year in four-digit format.
- %H: Returns the hour.
- %M: Returns the minute, from 00 to 59.
- %S: Returns the second, from 00 to 59.

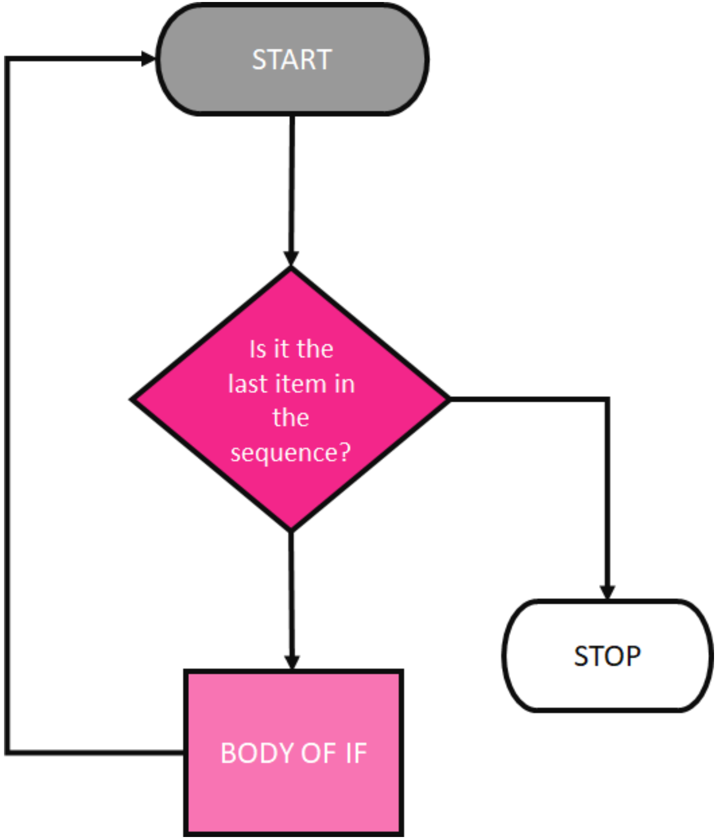
FOR LOOP

DEFINITION

- **for loop:** allows you to repeat a block of code multiple times

```
for number in range(10):
    print(number)
```

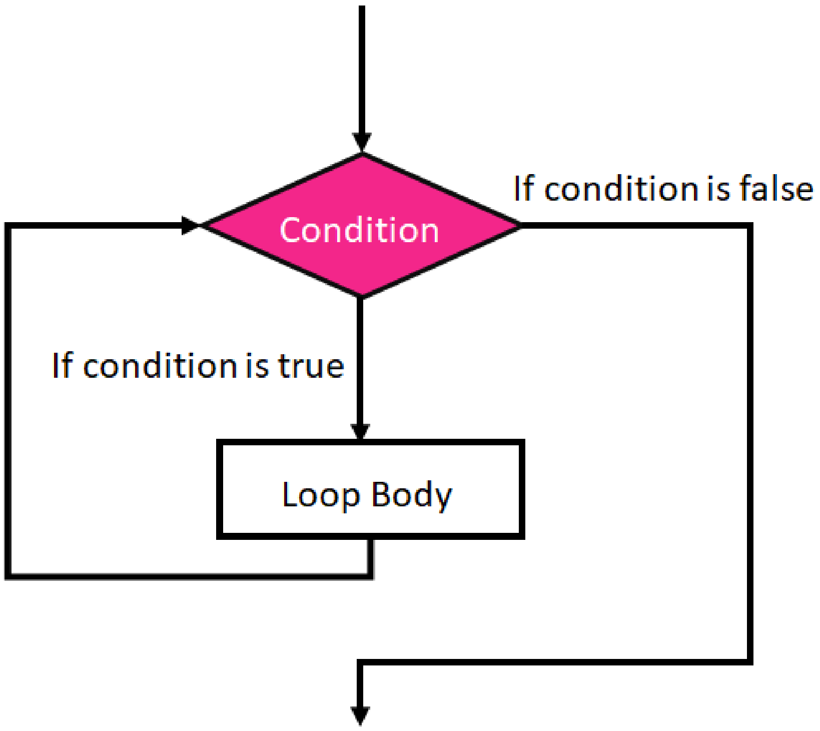
- A for loop is used to iterate over sequences (a collection of items).
- And not only just the sequences but any iterable object can also be traversed.
- The execution will start and look for the first item in the sequence.
- After executing the statements in the block, it will look for the next item and the process will continue until the the last item is reached.



WHILE LOOP

DEFINITION

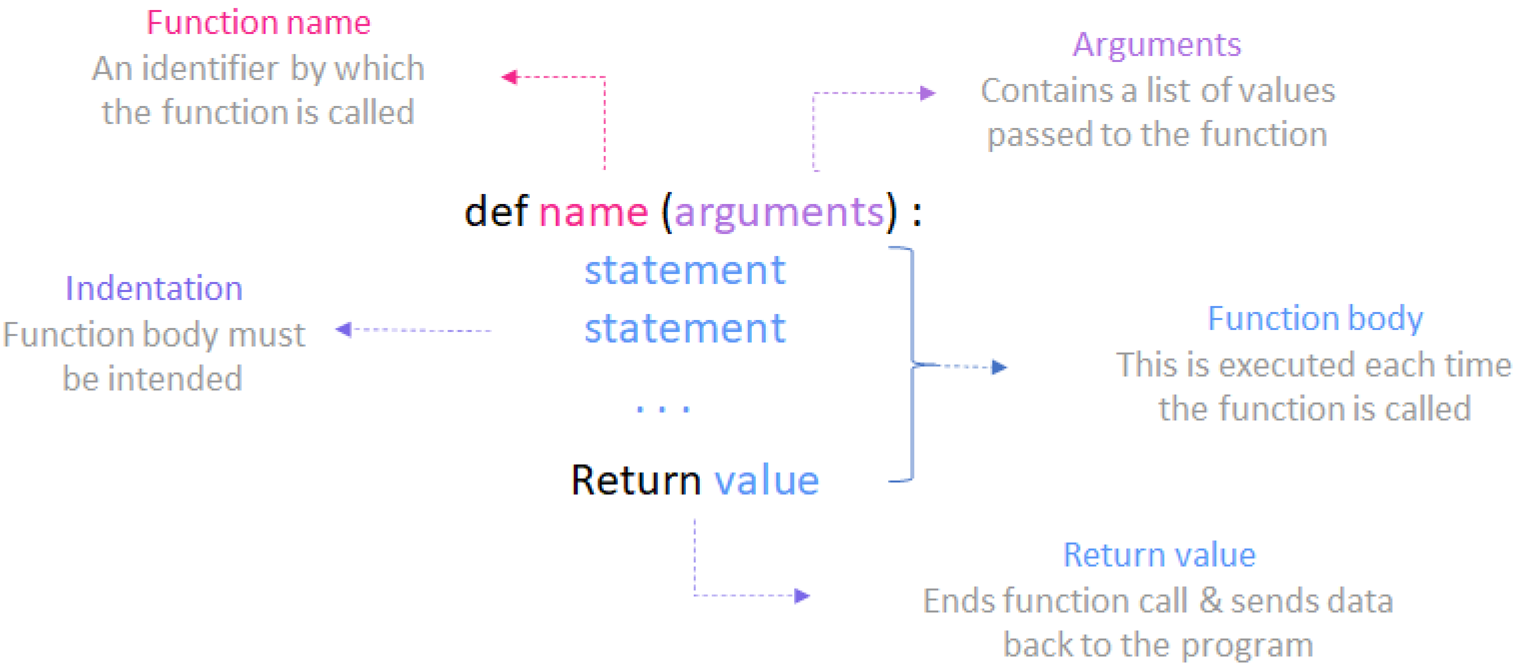
- A while loop in python is used to iterate over a block of code or statements as long as the test expression is true.
- In case of a while loop a user does not know beforehand how many iterations are going to take place.
- Beware of infinite while loops - they execute infinite times i we don't specify correct condition
- If the loop is running infinitely and never stops, we would 'blow' our memory usage and the program would encounter an error.



FUNCTION

DEFINITION

- **Function:** is a reusable block of code that contains one or more Python statements and used for performing a specific task.



Function name
An identifier by which
the function is called

Arguments
Contains a list of values
passed to the function

```
def name (arguments) :
    statement
    statement
    . . .
    Return value
```

Indentation
Function body must
be intended

Function body
This is executed each time
the function is called

Return value
Ends function call & sends data
back to the program

FUNCTION RETURN

DEFINITION

Return Value

- To return a value from a function, simply use a return statement.
- Once a return statement is executed, nothing else in the function body is executed.
- Remember! a python function ALWAYS returns a value.
- So, if you do not include any return statement, it automatically returns None.

EXAMPLE

- Complete demo & examples in PyCharm

THANK YOU!

CODE FIRST GIRLS