Collections : List - Part 1

Let us get familiar with the 'Collections' module on Python.

Collections in Python are containers that store collections of data.
In total, there are for collections on python:

- List
- Dict
- Set
- Tuple

Using these collections we can store any type of data that is related in some manner. Will will study all types of collections in the course...

List - definition

Lets begin, by starting with the first Collection type, which is 'List:

★ In Python, a list is created by placing all the values (elements) inside square brackets [], separated by commas between each value.

★ A list can have any number of values.

★ List can contain a mixed types of values (Integer, Float, String, etc)

Quick example:

Creation of a list: my_list = []

A list of integers: my_list = [1, 2, 3]

A Mixed list: my_list = [1, "Hello", 3.4]

How to access value in a list?
There are 2 ways to access items inside a list

1. Accessing by index
   We can use the index of a list's value, to access it. But, its important to remember that the first value would have the index 0 (and not 1).

   For example a list with 5 values in it, will have the index '4' as its last one.
   list_of_random_values = [31, 4, 31.5 , 3, "Yes"]

Value in list cell	31	4	31.5	3	"Yes"
Index of the value	0	1	2	3	4

   Trying to access other indexes than these, will raise an IndexError.

2. Negative indexing:

Python allows us to access the values. starting at the end of a list, by adding the prefix '-' to it.

In other words the index '-1' is referring to the last item of the list (= "Yes"), and index '-2' is referring to the second before last (=3).

So for the same list :

List_of_random_values = [31, 4, 31.5 , 3, "Yes"]

The once accessing to the values using 'Negative indexing", it will look like that

Value in list cell	31	4	31.5	3	"Yes"
Index of the value	-5	-4	-3	-2	-1

Accessing the list by index - examples:
- print(List_of_random_values [0]) -> output : 31
- print(List_of_random_values [3]) -> output : 3
- print(List_of_random_values [-2]) -> output : 3
- print(List_of_random_values [-1]) -> output : "Yes"
- print(List_of_random_values [7]) -> IndexError