Lecture 03: Introduction to Python

February 13, 2023

The American University in Cairo

1 Introduction to Python

1.1 Lists & Dictionaries & Tuples

- Slides by Ahmed Moustafa
- Content modified from Pierian Data

2 Lists

- Lists can be thought of the most general version of a sequence in Python.

- Unlike strings, they are **mutable**, i.e. elements inside a list can be changed.

- Lists are constructed with brackets [ ] and commas , separating every element in the list.

3 Creating a list

```
[2]: weights = [65.0, 70.5, 72.3, 68.0, 77.2]
     weights
```

```
[2]: [65.0, 70.5, 72.3, 68.0, 77.2]
```

```
[3]: cities = ["London", "Paris", "New York", "Tokyo", "Berlin"]
     cities
```

```
[3]: ['London', 'Paris', 'New York', 'Tokyo', 'Berlin']
```

```
[4]: len(cities)
```

```
[4]: 5
```

```
[5]: my_list = [1, 2.5, "hello", "world", 42, "python"]
     my_list
```

[5]: [1, 2.5, 'hello', 'world', 42, 'python']

4 Indexing and Slicing

Indexing and slicing work just like in strings:

[6]: 'London'

```
[7]: cities[1:]
```

[7]: ['Paris', 'New York', 'Tokyo', 'Berlin']

```
[8]: cities[::-1]
```

[8]: ['Berlin', 'Tokyo', 'New York', 'Paris', 'London']

```
[9]: cities + ["Cairo", "Alexandria"]
```

[9]: ['London', 'Paris', 'New York', 'Tokyo', 'Berlin', 'Cairo', 'Alexandria']

5 Indexing and Slicing

[10]: ['London', 'Paris', 'New York', 'Tokyo', 'Berlin']

```
[11]: cities += ["Cairo", "Alexandria"]
      cities
```

[11]: ['London', 'Paris', 'New York', 'Tokyo', 'Berlin', 'Cairo', 'Alexandria']

```
[12]: cities * 2
```

[12]: ['London',
      'Paris',
      'New York',
      'Tokyo',
      'Berlin',
      'Cairo',
      'Alexandria',
      'London',
      'Paris',
      'New York',
      'Tokyo',
      'Berlin',
      'Cairo',
```

```
      'Alexandria']
```

[13]: `len(cities)`

[13]: 7