Lecture 03: Introduction to Python

February 13, 2023

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