**Understanding Python Datatypes**

In computer programming, data types specify the type of data that can be stored inside a variable. For example,

num = 24

Here, **24** (an integer) is assigned to the num variable. So the data type of num is of the int class.

**Python Data Types**

|  |  |  |
| --- | --- | --- |
| **Data Types** | **Class** | **Description** |
| numeric | int, float, complex | Holds numeric values |
| string | str | Holds sequence of characters |
| sequence | list, tuple ,range | Holds collection of items |
| mapping | dict | Holds data in key-value pair form |
| boolean | bool | Holds either True or False |
| set | set | Holds collection of unique items |

Since everything is an object in Python programming, data types are actually classes and variables are instances(object) of these classes.

**Python Numeric Data type**

In Python, the numeric data type is used to hold numeric values.

Integers, floating-point numbers and complex numbers fall under Python numbers category. They are defined as int, float and complex classes in Python.

* **int** - holds signed integers of non-limited length.
* **float** - holds floating decimal points and it's accurate up to **15** decimal places.

We can use the type() function to know which class a variable or a value belongs to.

Let's see an example,

num1 = 55

num2 = 5.3

print(num1)

print(num2)

**Python List Data Type**

A list is an ordered collection of similar or different types of items separated by commas and enclosed within brackets [ ]. For example,

languages = ["Python", "Dart", "Web", 23]

print(languages)

Here, we have created a list named languages with **3** string values inside it.

**Access List Items**

To access items from a list, we use the index number **(0, 1, 2 ...)**. For example,

languages = ["Python", "Dart", "Web", 23]

print(languages[1])

In the above example, we have used the index values to access items from the languages list.

* languages[0] - access the first item from languages i.e. Python
* languages[2] - access the third item from languages i.e. Web

**Python Tuple Data Type**

A tuple is an ordered sequence of items same as a list. The only difference is that tuples are immutable. Tuples once created cannot be modified.

In Python, we use the parentheses () to store items of a tuple. For example,

products = ('XBox', 499.99, "Habibi", 23)

print(products)

Here, product is a tuple with a string value Xbox and integer value **499.99**.

**Access Tuple Items**

Similar to lists, we use the index number to access tuple items in Python. For example,

products = ('XBox', 499.99, "Habibi", 23)

print(products[2])

**Python String Data Type**

String is a sequence of characters represented by either single or double quotes. For example,

site\_name = "Power Learn Project"

print(site\_name)

In the above example, we have created string-type variables: name and message with values 'Python' and 'Python for beginners' respectively.

**Python Set Data Type**

The Set is an unordered collection of unique items. Set is defined by values separated by commas inside braces { }. For example,

student\_ids = {112, 114, 117, 113}

print(student\_ids)

Here, we have created a set named student\_info with **5** integer values.

Since sets are unordered collections, indexing has no meaning. Hence, the slicing operator [] does not work.

**Python Dictionary Data Type**

Python dictionary is an ordered collection of items. It stores elements in key/value pairs.

Here, keys are unique identifiers that are associated with each value.

Let's see an example,

capital\_city = {"Kenya": "Nairobi", "Nigeria": "Lagos"}

print(capital\_city)

**More Resources:**

1. <https://www.geeksforgeeks.org/python-data-types/>
2. <https://realpython.com/python-data-types/>
3. <https://www.digitalocean.com/community/tutorials/python-data-types>
4. <https://jakevdp.github.io/PythonDataScienceHandbook/02.01-understanding-data-types.html>