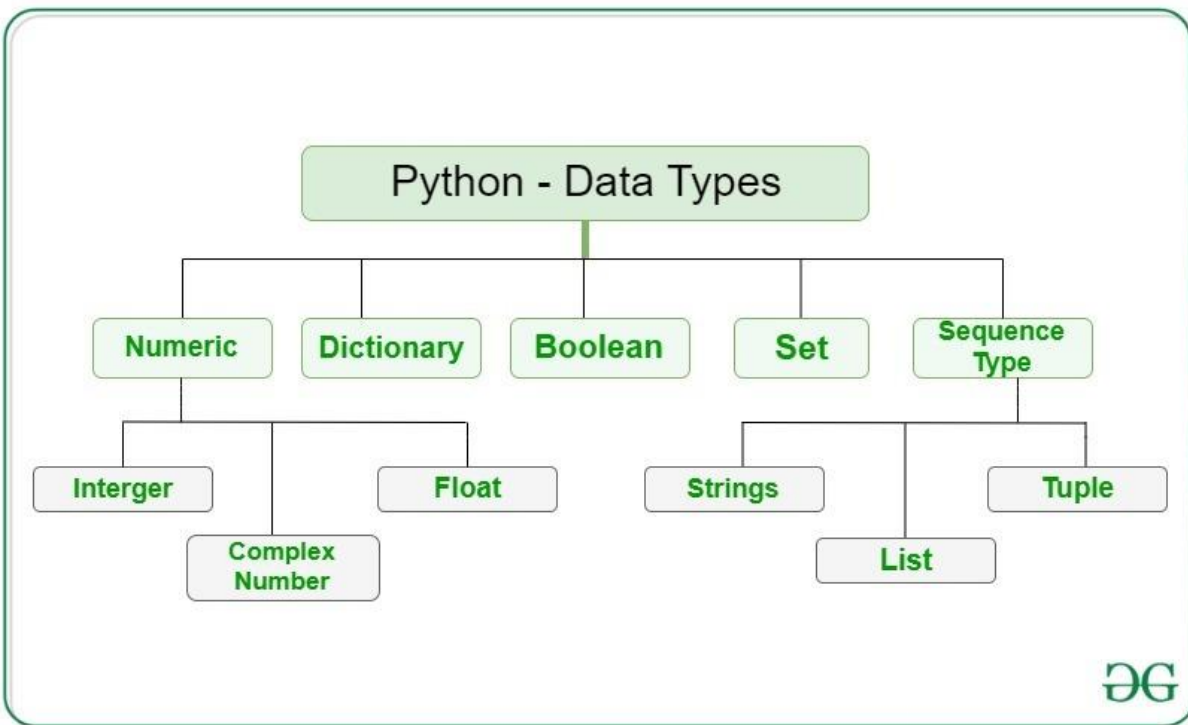

DATA TYPES

Python Data types are the classification or categorization of data items. It represents the kind of value that tells what operations can be performed on a particular data. Since everything is an object in Python programming, Python data types are classes and variables are instances (objects) of these classes. The following are the standard or built-in data types in Python. **Python Sets**



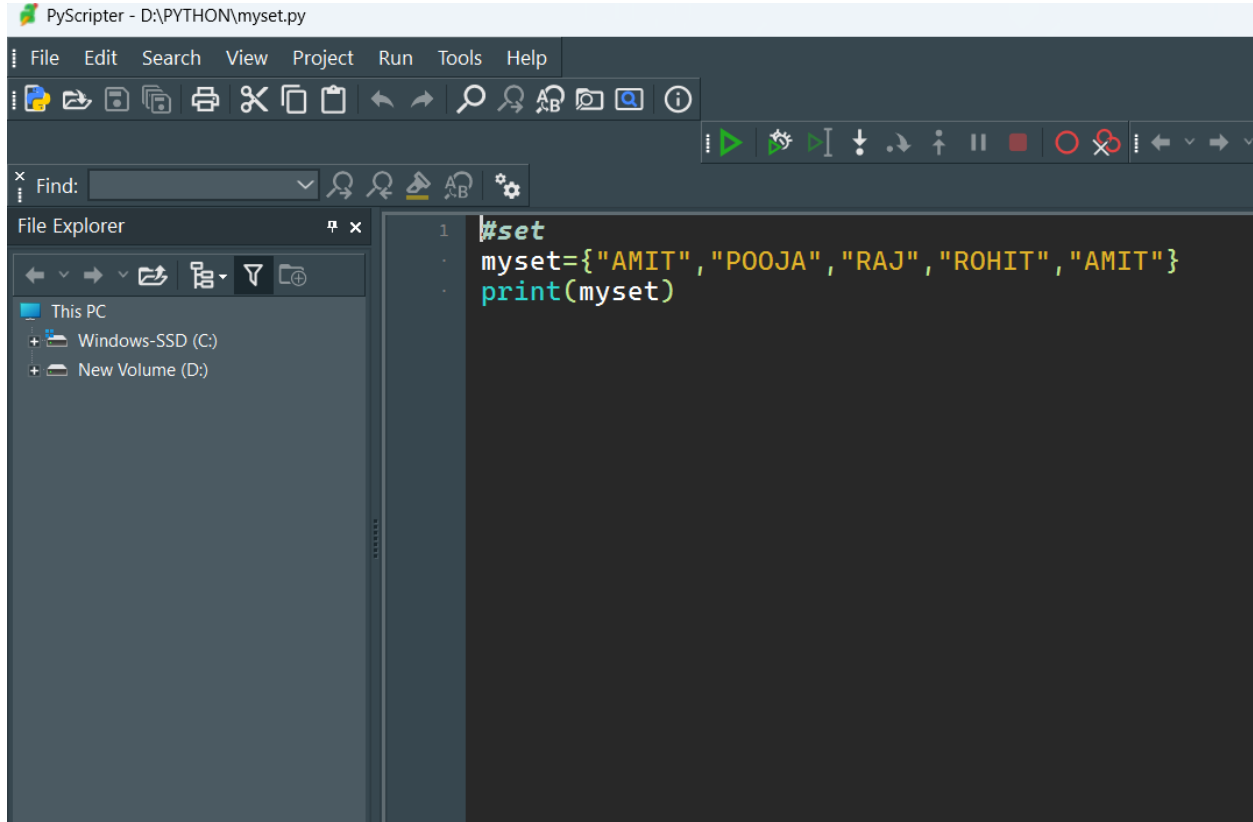
Python Sets

Python Set is an unordered collection of data types that is iterable, mutable, and has no duplicate elements. The order of elements in a set is undefined though it may consist of various elements. The major advantage of using a set, as opposed to a list, is that it has a highly optimized method for checking whether a specific element is contained in the set. Here, we will see what is a set in Python and also see different examples of set Python.

Creating a Set in Python

Python Sets can be created by using the built-in **set()** function with an iterable object or a sequence by placing the sequence inside curly braces, separated by a 'comma'.

EXAMPLE:

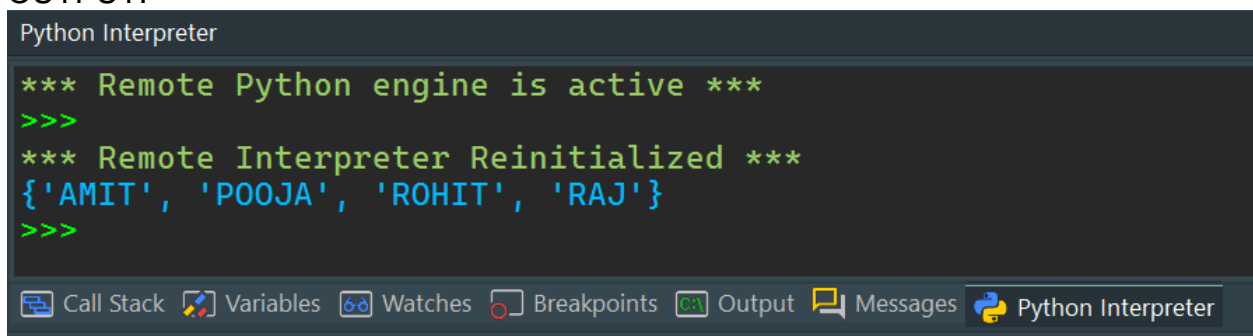


The screenshot shows the PyScripter IDE with a file named 'myset.py' in the D:\PYTHON directory. The code in the editor is as follows:

```
1 #set
2 myset={"AMIT","POOJA","RAJ","ROHIT","AMIT"}
3 print(myset)
```

The File Explorer on the left shows the directory structure: This PC > Windows-SSD (C:) > New Volume (D:).

OUTPUT:



The screenshot shows the Python Interpreter output window with the following text:

```
*** Remote Python engine is active ***
>>>
*** Remote Interpreter Reinitialized ***
{'AMIT', 'POOJA', 'ROHIT', 'RAJ'}
>>>
```

The bottom of the window shows tabs for Call Stack, Variables, Watches, Breakpoints, Output, Messages, and Python Interpreter.

Python String

A String is a data structure in Python Programming that represents a sequence of characters. It is an immutable data type, meaning that once you have created a string,

you cannot change it. Python String are used widely in many different applications, such as storing and manipulating text data, representing names, addresses, and other types of data that can be represented as text

What is a String in Python?

[Python](#) Programming does not have a character data type, a single character is simply a string with a length of 1.

Syntax of String Data Type in Python

```
string_variable = 'Hello, world!'
```

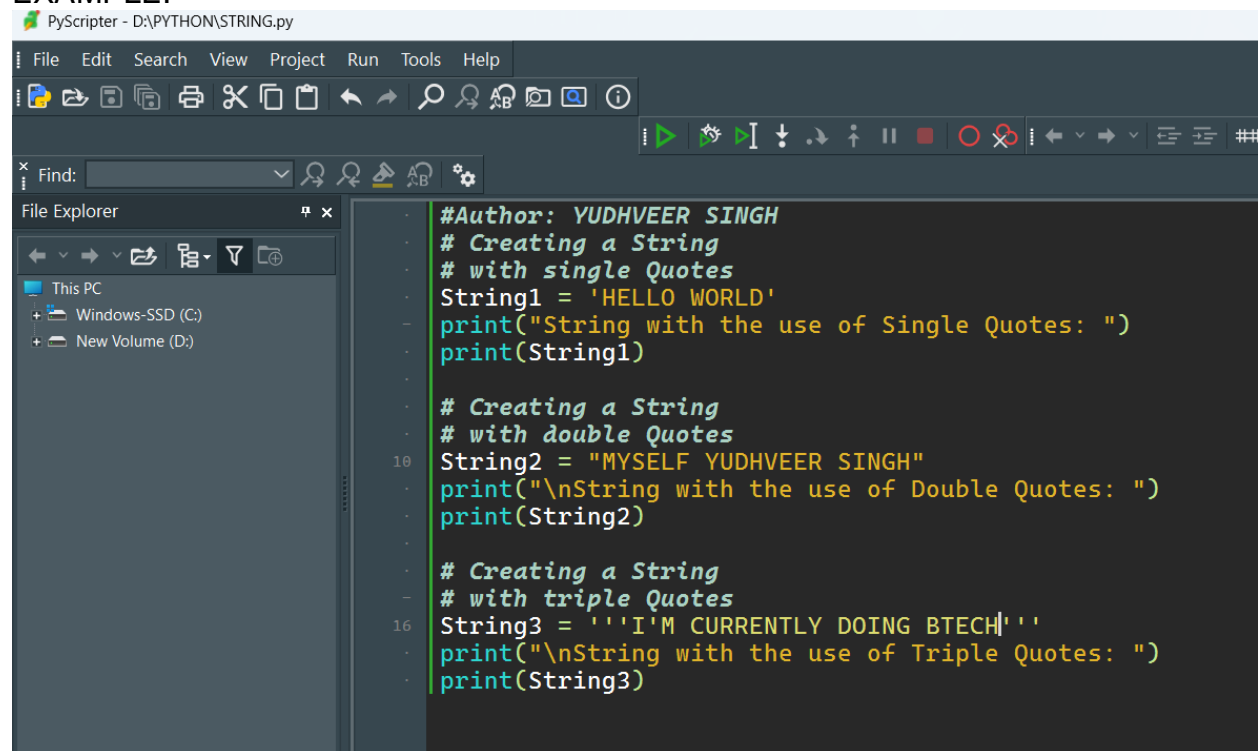
Create a String in Python

Strings in Python can be created using single quotes or double quotes or even triple quotes. Let us see how we can define a string in Python or how to write string in Python.

Example:

In this example, we will demonstrate different ways to create a Python String. We will create a string using single quotes (' '), double quotes (" "), and triple double quotes ("""). The triple quotes can be used to declare multiline strings in Python.

EXAMPLE:

A screenshot of the PyScripter IDE interface. The title bar shows 'PyScripter - D:\PYTHON\STRING.py'. The menu bar includes File, Edit, Search, View, Project, Run, Tools, and Help. The toolbar contains icons for file operations, search, and execution. The File Explorer on the left shows 'This PC' with drives 'Windows-SSD (C:)' and 'New Volume (D:)'. The main editor displays a Python script with the following content:

```
#Author: YUDHVEER SINGH
# Creating a String
# with single Quotes
String1 = 'HELLO WORLD'
print("String with the use of Single Quotes: ")
print(String1)

# Creating a String
# with double Quotes
String2 = "MYSELF YUDHVEER SINGH"
print("\nString with the use of Double Quotes: ")
print(String2)

# Creating a String
# with triple Quotes
String3 = '''I'M CURRENTLY DOING BTECH'''
print("\nString with the use of Triple Quotes: ")
print(String3)
```

OUTPUT:

```
Python Interpreter
*** Remote Interpreter Reinitialized ***
String with the use of Single Quotes:
HELLO WORLD

String with the use of Double Quotes:
MYSELF YUDHVEER SINGH

String with the use of Triple Quotes:
I'M CURRENTLY DOING BTECH
>>>
```

Python Lists

Python Lists are just like dynamically sized arrays, declared in other languages (vector in C++ and Array List in Java). In simple language, a list is a collection of things, enclosed in [] and separated by commas.

The list is a sequence data type which is used to store the collection of data.

Creating a List in Python

Lists in Python can be created by just placing the sequence inside the square brackets[]. Unlike [Sets](#), a list doesn't need a built-in function for its creation of a list

Accessing elements from the List

In order to access the list items refer to the index number. Use the index operator [] to access an item in a list. The index must be an integer. Nested lists are accessed using nested indexing.

EXAMPLE:

```
PyScripter - D:\PYTHON\list.py
File Edit Search View Project Run Tools Help
[Icons]
[Run, Debug, etc. icons]
Find:
File Explorer
This PC
+ Windows-SSD (C:)
+ New Volume (D:)
#Author: YUDHVEER SINGH
2 list=["AMIT", "POOJA", "RAJ", "ROHIT", "PRIYA"]
print(list)
print(list[0])
print(list[1:])
print(list[:3])
list.sort()
print(list)
list.sort(reverse=True)
10 print(list)
```

OUTPUT:

```
Python Interpreter

>>>
*** Remote Interpreter Reinitialized ***
['AMIT', 'POOJA', 'RAJ', 'ROHIT', 'PRIYA']
AMIT
['POOJA', 'RAJ', 'ROHIT', 'PRIYA']
['AMIT', 'POOJA', 'RAJ']
['AMIT', 'POOJA', 'PRIYA', 'RAJ', 'ROHIT']
['ROHIT', 'RAJ', 'PRIYA', 'POOJA', 'AMIT']
>>>
```

Python Tuples

Python Tuple is a collection of Python Programming objects much like a list. The sequence of values stored in a tuple can be of any type, and they are indexed by integers. Values of a tuple are syntactically separated by '**commas**'. Although it is not necessary, it is more common to define a tuple by closing the sequence of values in parentheses. This helps in understanding the Python tuples more easily.

Creating a Tuple

In Python Programming, tuples are created by placing a sequence of values separated by 'comma' with or without the use of parentheses for grouping the data sequence.

EXAMPLE:

```
PyScripter - D:\PYTHON\tuple.py*

File Edit Search View Project Run Tools Help

#Author: YUDHVEER SINGH
#tuple
mytuple=("AMIT","POOJA","RAJ","ROHIT")
print(mytuple)
print(mytuple[0])
print(mytuple[1:])
print(mytuple[:3])
```

OUTPUT:

```
Python Interpreter

*** Remote Interpreter Reinitialized ***
('AMIT', 'POOJA', 'RAJ', 'ROHIT')
AMIT
('POOJA', 'RAJ', 'ROHIT')
('AMIT', 'POOJA', 'RAJ')
>>>
```

Call Stack Variables Watches Breakpoints Output Messages Python Interpreter

Dictionaries in Python

Dictionaries in Python is a data structure, used to store values in key :value format. This makes it different from lists, tuples, and arrays as in a dictionary each key has an associated value.

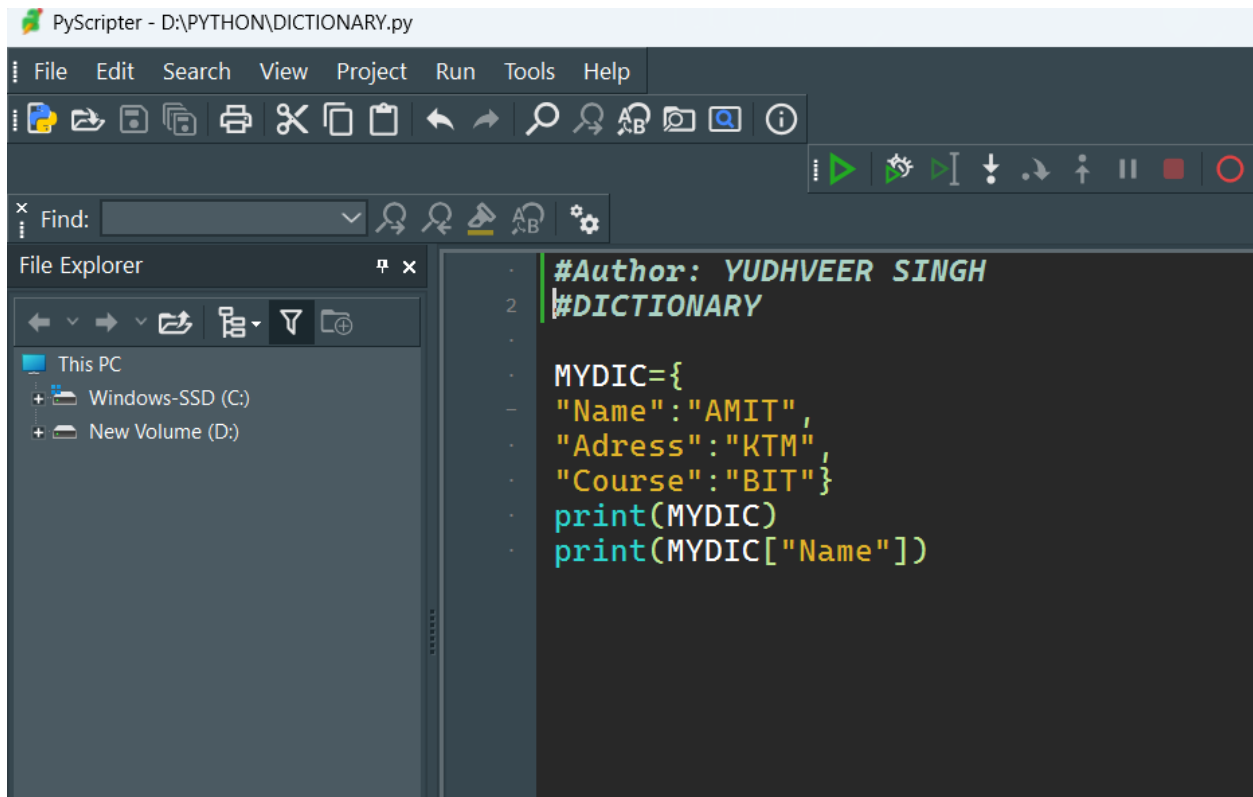
How to Create a Dictionary

In [Python](#), a dictionary can be created by placing a sequence of elements within curly {} braces, separated by a 'comma'.

The dictionary holds pairs of values, one being the Key and the other corresponding pair element being its **Key:value**.

Values in a dictionary can be of any data type and can be duplicated, whereas keys can't be repeated and must be *immutable*.

EXAMPLE:



OUTPUT:

