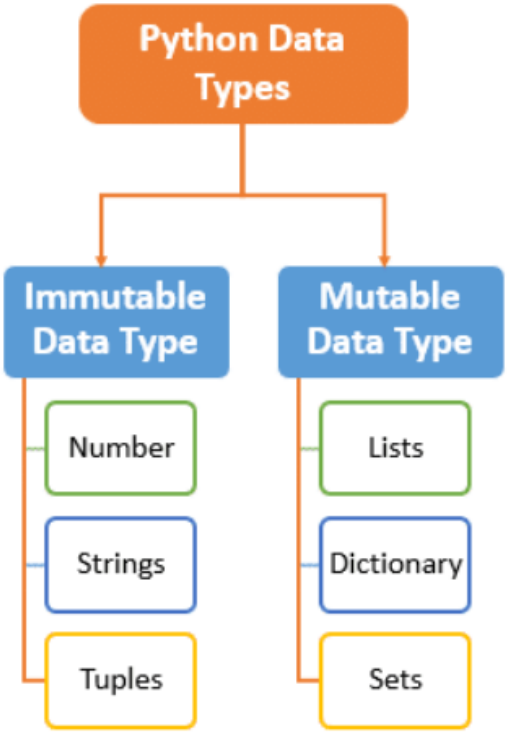
#NUMBERS IN PYTHON.

The number data type is divided into the following five data types:

- Integer
- Long Integer
- Octal and Hexadecimal
- Floating-point Numbers
- Complex Numbers

#DATA TYPES -



- **Numbers:**The number data type in Python is used to store numerical values. It is used to carry out the normal mathematical operations.
- **Strings:**Strings in Python are used to store textual information. They are used to carry out operations that perform positional ordering among items.
- **Lists:**The list data type is the most generic Python data type. Lists can consist of a collection of mixed data types, stored by relative positions.
- **Tuples:**Tuples are one among the immutable Python data types that can store values of mixed data types. They are basically a list that cannot be changed.
- **Sets:**Sets in Python are a data type that can be considered as an unordered collection of data without any duplicate items.
- **Dictionaries:**Dictionaries in Python can store multiple objects, but unlike lists, in dictionaries, the objects are stored by keys and not by positions.

- Mutable Data Types: Data types in python where the value assigned to a variable can be changed
- Immutable Data Types: Data types in python where the value assigned to a variable cannot be changed

VARIABLES—

Creating and Declaring Python Variables

Python does not have a specific command just to declare or create a variable; however, there are some rules that we need to keep in mind while creating Python variables.

- Name of a variable cannot start with a number. It should start with either an alphabet or the underscore character.
- Variable names are always case sensitive and can contain alphanumeric characters and the underscore character.
- Reserved words cannot be used as variable names.
- Python Variables are always assigned using the equal to sign followed by the value of the variable.

A variable in Python is created as soon as we assign a value to it. Python also does not require specifying the data type of the variable unlike other programming languages.

Local Variables in Python

A variable that is declared inside a python function or a module can only be used in that specific function or Python Module. This kind of variable is known as a local variable. Python interpreter will not recognize that variable outside that specific function or module and will throw an error if that variable is not declared outside of that function.
Example:

```
a=100
print (f)
def some_function()
f = 'Intellipaat'
print(f)
some_function()
print(f)
Output:
100
Intellipaat
100
```

Here, in this example, when the variable *f* is declared the second time inside the function named some_function, it becomes a local variable. Now, if we use that variable inside the function, there will be no issues as we can see that in the output of second print(f), it prints the value assigned to *f* in the function, that is, Intellipaat.
Whereas, when we try to print the value of *f* outside the function, it prints the value assigned to it outside the function as we can see that in the output of the first and the third print(f), it prints 100.

Global Variables In Python

On the other hand, global variable in Python is a variable that can be used globally anywhere in the program. It can be used in any function or module, and even outside the functions, without having to re-declare it.

Example:

```
a = 100
print (a)
def som_function():
global a
print (a)
a = 'Intellipaat'
some_function()
print (a)
```

```
Output:
100
100
Intellipaat
```

Here in this example, we have re-declared the variable *a* in the function as a global variable. Now, if we change the value of this variable inside the function and then print the value of this variable outside the function, then it will print the changed value as we can see in the output of the third print(a). Since variable *a* was declared globally, it can be used outside the function as well.

Deleting Python Variables

Python provides a feature to delete a variable when it is not in use so as to free up space. Using the command del 'variable name', we can delete any specific variable.

Example:

```
a = 10
print (a)
del a
print (a)
```

If we run the above program, Python interpreter will throw an error as '**NameError: name a is not defined**' in the second print (a), since we have deleted the variable *a* using the del a command.

WE HAVE COVERED STRINGS BASICS (STRING DECLARATION, UPDATION, DELETION) IN CLASS . REFER TO CLASS CODE ON GITHUB ! HERE IS MORE ON STRINGS-

There are three types of operators supported by a string, which are:

- **Basic Operators** (+, *)
- **Relational Operators** (<, ><=, >=, ==, !=)
- **Membership Operators** (in, not in)

Table: Common String Constants and Operations

Operators	Description
s1 = ‘ ’	Empty string
s2 = “a string”	Double quotes
block = “‘…’”	Triple-quoted blocks
s1 + s2	Concatenate
s2 * 3	Repeat
s2[i]	i=Index
s2[i:j]	Slice
len(s2)	Length
“a %s parrot” % ‘dead’	String formatting in Python
for x in s2	Iteration
‘m’ in s2	Membership

#APART FROM THIS THERE ARE BULIT IN STRING METHODS FOR EXAMPLE LEN() FUNCTION ..ETC.