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Strings and String Functions

Python – Session – 3

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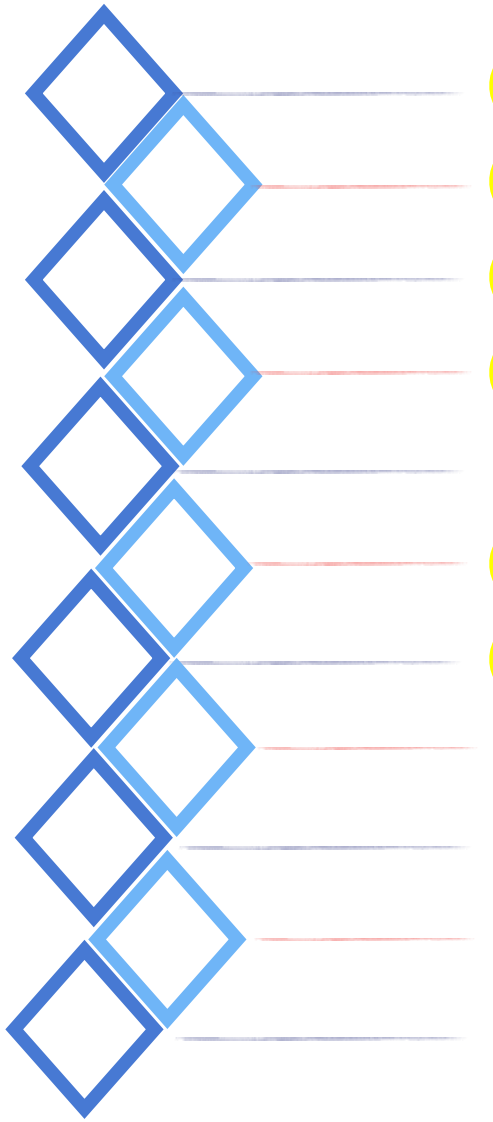
Agenda



- Strings
- Strings - Functions
- Math - Functions
- Lists and Its functions
- Tuples and Its functions
- For and While loops
- Break, Pass and Continuous statements
- Dictionary and Its functions
- Time stamp data
- File Handling
- Functions in Python, Lambda and List Comprehension

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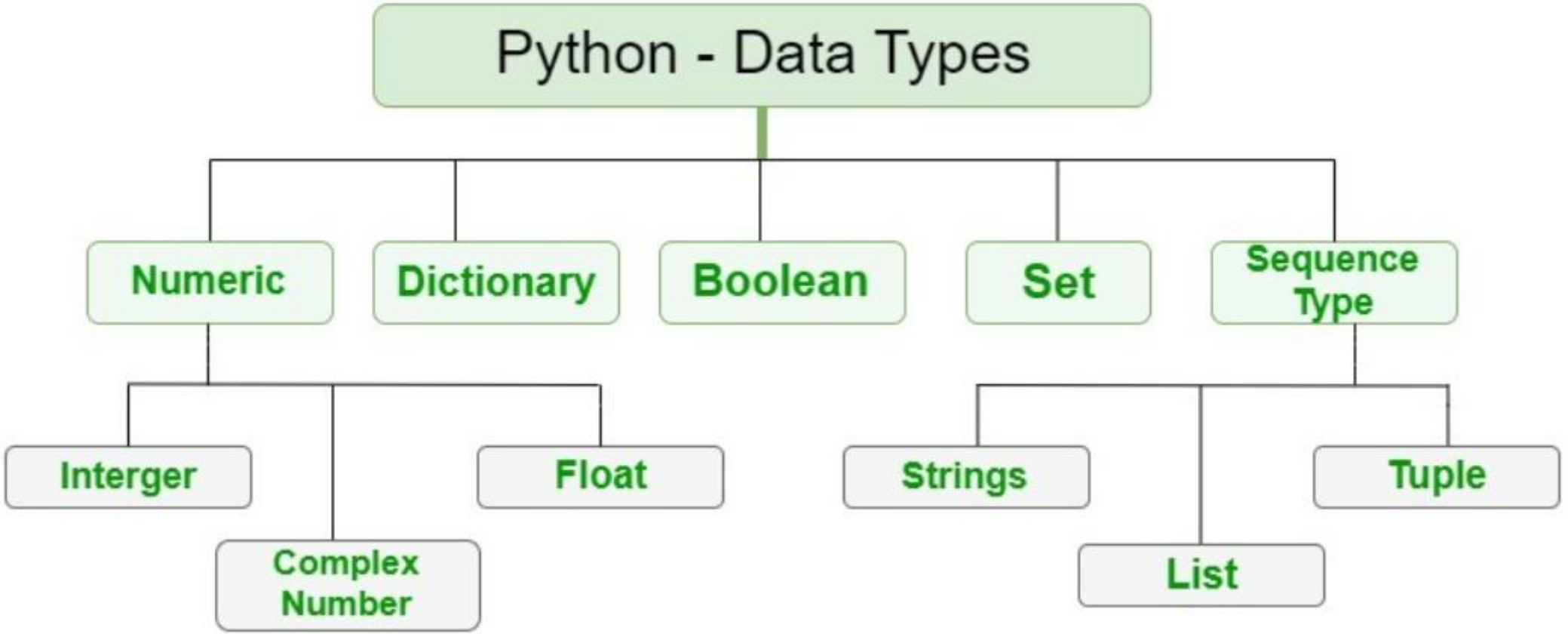
Python Data Types

Following are the standard or built-in data type of Python:



Sequence Types

In Python, sequence is the ordered collection of similar or different data types. Sequences allows to store multiple values in an organized and efficient fashion.

There are 3 sequence types in Python:

- String
- List
- Tuple

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Strings

Strings are amongst the most popular types in Python. We can create them simply by enclosing characters in quotes. Python treats single quotes ‘ the same as double quotes “.
Creating strings is as simple as assigning a value to a variable.

Example:

```
name = ‘Prime Intuit’
print(name)

phrase = “Prime Intuit one of the finest finishing school”
Print(phrase)

Multiline = “”” There was a boy named Raja
            who was a very good sprinter
            He could run faster then a deer”””
```

Accessing Values in Strings

Python does not support a character type; these are treated as strings of length one, thus also considered a substring.

To access substrings, use the square brackets for slicing along with the index or indices to obtain your substring.

Example:

Name = ‘Prime Intuit’

Phrase = “Prime Intuit one of the finest finishing school”

```
print(name[0])
print(name[0:5])
```

Length Functions: len()

```
Print(len(Name))
```

String Operators

a = “Hello”

b = “Prime Intuit”

c = “Finishing School”

+ or concatenation operator will concatenate 2 or more strings

print(a+b)

output: HelloPrime Intuit

print(a+b+c)

output: HelloPrime IntuitFinishing School

print(a + b + c[9:]) # concatenation with slicing

output: HelloPrime Intuit School

String Operators

a = “Hello”

b = “Prime Intuit”

c = “Finishing School”

*** , Repetition Operator, concatenates multiple copies of same string**

```
print (a*3 )  # repetition operator
output: Hello Hello Hello
print (a*3 +b)  # repetition with concatenation
output: HelloHelloHelloPrime Intuit
print ( a*2 + " "+ b + c[9:]*2)  # repetition with concatenation & slicing
output: HelloHello Prime Intuit School School
```

String Operators

a = “Hello”

b = “Prime Intuit”

c = “Finishing School”

[ ], [:] Slicing and Range slicing operators, will return characters from string

```
print(a[1])      # output e
print(a[0])      # output H
print(b[:6])     # output Prime
print(b[6:])     # output Intuit
print(b[6:9])    # output Int
Print(b[-1]      # Negative indexing
```

String Operators

a = “Hello”

b = “Prime Intuit”

c = “Finishing School”

in , Membership Operator, Returns true (Boolean) if a character exists in the given string

```
d = 'I' in b
print(d)            # output True
print(type(d))      # output  <class ‘bool’>
```

String Operators

a = “Hello”

b = “Prime Intuit”

c = “Finishing School”

in , Membership Operator, Returns true (Boolean) if a character exists in the given string

```
d = 'I' in b
print(d)            # output True
print(type(d))      # output  <class ‘bool’>
```

String Operators

a = “Hello”

b = “Prime Intuit”

c = “Finishing School”

not in , Membership Operator, Returns true (Boolean) if a character does not exists in the given string

```
d = 'l' not in b
print(d)            # output False
print(type(d))      # output  <class 'bool'>
```

String Operators

a = “Hello”

b = “Prime Intuit”

c = “Finishing School”

r/R, Raw String – Suppresses actual meaning of Escape characters

```
print('This will continue printing \n in next line’)
# output: This will continue printing
in next line
print('This will continue printing' R'\n' 'in next line')
# output: This will continue printing\nin next line
```

String Operators

a = “Hello”

b = “Prime Intuit”

c = “Finishing School”

%, Format - Performs String formatting, works in combination with Format Symbol

Example:

```
print ("My name is %s and weight is %d kg!" % (‘Niranjan’, 71))
# output: My name is Niranjan and weight is 71 kg! in next line
```

%c – character, %d – signed decimal integer, %u – unsigned decimal integer, %f – floating point real number

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Python – Built in String Methods

e = “Hello Hello Hello This is a grand sale”

b = “Prime Intuit”

c = “Finishing School”

f = 'there was a big Tiger'

Method	Description	Example
capitalize()	Capitalizes first letter of string	print(f.capitalize())
center(width, fillchar)	Returns a string padded with *fillchar* with the original string centered to a total of *width* columns.	print(e.count("Hello"))
len(string)	Returns the length of the string	print(len(a))
count(str, beg= 0,end=len(string))	Counts how many times str occurs in string or in a substring of string if starting index beg and ending index end are given.	e.count(“Hello”)

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Python – Built in String Methods

Method	Description	Example
find()	Determine if str occurs in string or in a substring of string if starting index beg and ending index end are given returns index if found and -1 otherwise.	
Index()	Same as find(), but raises an exception if str not found.	
Isalnum()	Returns true if string has at least 1 character and all characters are alphanumeric and false otherwise.	
Isalpha()	Returns true if string has at least 1 character and all characters are alphabetic and false otherwise.	

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Python – Built in String Methods

Method	Description	Example
Isdigit()	Returns true if the string contains only digits and false otherwise.	
Islower()	Returns true if string has at least 1 cased character and all cased characters are in lowercase and false otherwise.	
Isnumeric()	Returns true if a unicode string contains only numeric characters and false otherwise.	
Isspace()	Returns true if string contains only whitespace characters and false otherwise.	

Python – Built in String Methods

Method	Description	Example
isupper()	Returns true if string has at least one cased character and all cased characters are in uppercase and false otherwise.	
join()	Merges (concatenates) the string representations of elements in sequence seq into a string, with separator string.	
lower()	Converts all uppercase letters in string to lowercase.	
lstrip()	Removes all leading whitespace in string.	