Data Science & Artificial Intelligence

Python for Data Science

Python Collections and String Handling

lec -02

Topics *to be covered*

- Python Collections and String Handling

RECAP

String Operators

concatenation

repetition

comparison

membership

escape operators

string formatting

Slicing

STRINGS

String Methods

- .strip()
- .lstrip()
- .rstrip()

```
str1 = "   Hello World   "
print(str1.strip())  => "Hello World"

str2 = "...Virat.Kohli..."
print(str2.strip("."))  => "Virat.Kohli"

str3 = "...Virat.Kohli..."
print(str3.strip("V.i"))
```

```
print(str3.lstrip("V.i"))
```

at Kohli...

```
print(str3.rstrip("V.i"))
```

...Virat Koh

at Koh

STRINGS

- split( ) str1 = " I am preparing for GATE 2026"
  print(str1.split( )) ⇒ str1.split(" ", maxsplit=2)
- rsplit( ) tuple( )
  print(str2.rsplit(",", maxsplit=2) ["I", "am", "preparing", "for", "GATE", "2026"]
  ["1,2,3,4", "5", "6"] str2 = "1,2,3,4,5,6" ["I", "am", "2026"]
  print(str2.split(",", maxsplit=2) print(str2.split(","))
  ["1", "2", "3,4,5,6"] ["1", "2", "3", "4", "5", "6"]

STRINGS

- join()

l = [1, 2, 3]

"" .join(l)

1 2 3

"-" .join(l)

1-2-3

print("-".join("GATE"))

G-A-T-E

print("ab".join("GATE"))

GabAabTabE

STRINGS

Str1[0] = 'a'

replace()

str1 = "Sachin, Dhoni, Rohit, DK"

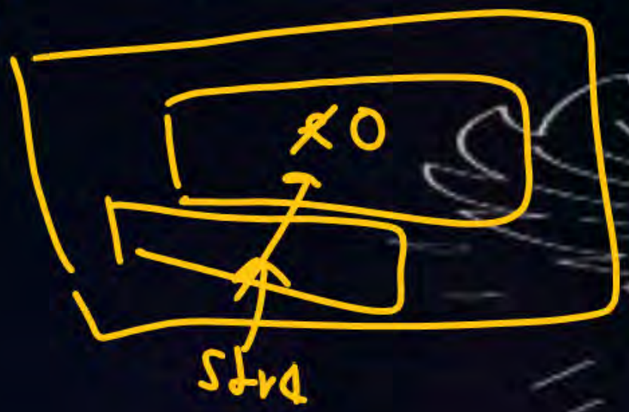
Str22 "Hello World Hello"

print(Str2.replace("Hello", "GATE", count))

print(str1.replace("DK", "Raina"))

Sachin, Dhoni, Rohit, Raina

"GATE World Hello"



STRINGS

- upper( )
- lower( )
- islower( )
- isupper( )
- capitalize( )
- swapcase( )

str = "Abc"

print(str.upper( )) ⇒ ABC

print(str.lower( )) ⇒ abc

print(str.islower( )) ⇒ False

print(str.isupper( )) ⇒ False

print(str.swapcase( )) ⇒ aBC

str = "hello"

str.capitalize( )

Hello

STRINGS

- isalpha()
- isnumeric()
- isalnum()
- count()

str4 = "Virat18"

print(str4.isalnum())

⇒ True

statement = "My name is Charan"

statement.count("a") → 3

str1 = "Hello World"

print(str1.isalpha()) False

str1 = "Hello"

print(str1.isalpha()) ⇒ True

str2 = "28"

print(str2.isnumeric()) ⇒ True

str3 = "100.7"

print(str3.isnumeric()) = False

Statement.count("a", 0, 8) → 1

STRINGS

- .find()
- .rfind()
- .index()
- .rindex()

Error

str1 = " Hello World"

print(str1.find("ll")) => 2

print(str1.find("la")) => -1

str2 = "Hello World Hello"

print(str2.rfind("ll")) => 14

LIST

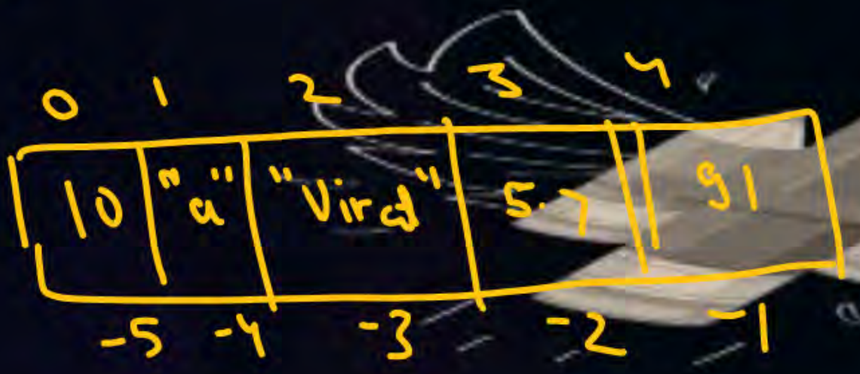
Initializing List

```
a = [ ]
a = list( )
a = list("Hello")
print(a)
```

```
a = [1, "Hello", 4.0, 5, True]
["H", "e", "l", "l", "o"]
```

Accessing the list

```
a[1] → "a"
a[2] → "Virat"
```



LIST

a = [[1,2,3,[4,5]] , [6,[7,8]] , 9 , 10 , 11]

0	1	2	3	4
[1,2,3,[4,5]]	[6,[7,8]]	9	10	11
-5	-4	-3	-2	-1

a[0] ⇒ [1, 2, 3, [4,5]]
(-4, -3, -2, -1 / 0, 1, 2, 3)

a[0][3] ⇒ [4, 5]
(-2, -1 / 0, 1)

a[0][3][0] ⇒ 4

a[0][-1][-2]
a[0][-1][0]
a[-5][-1][-2]

LIST

Slicing

```
l1 = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']
      0    1    2    3    4    5    6    7    8    9
     -10  -9   -8   -7   -6   -5   -4   -3   -2   -1
```

l1[:]

l[2:7] ⇒ ['c', 'd', 'e', 'f', 'g']

l[2:9:2] ⇒ ['c', 'e', 'g', 'i']

l[6:2] ⇒ []

l[-4:8] → ['g', 'h']

l[:: -1] reversal

['g', 'f', 'e', 'd']

l1[-4:-8:-1]

l1[-4:-8] = []

Summary

Adding elements in the list

a = [1, 2, 3, 4]

a.append(5)

print(a)

[1, 2, 3, 4, 5]

a.append("abc")

[1, 2, 3, 4, "abc"]

a.extend([5, 6, 7])

[1, 2, 3, 4, 5, 6, 7]

a.extend("abc")

[1, 2, 3, 4, "a", "b", "c"]

extend( )

[1, "abc", 3, 4]

⇒ a[1] = "abc"

insert(index, element)

⇒ a.insert(1, "abc")

[1, "abc", 2, 3, 4]

THANK - YOU