Data Science & Artificial Intelligence

Python for Data Science

Python Collections and String Handling

Lec - 01

RECAP

break

continue

pass

else

Problem solving

```
i = [10, 20, 30]
for item in i:
    print(item)
    break
else:
    print("For loop ended")
```

10

20

30

For loop ended

Topics *to be covered*

- **Python Collections and String Handling**

STRINGS

1) Concatenation (+)

a = "Hello" + "World"

print (a) ⇒ HelloWorld → HelloWorld

str1 = 'a' + 'b' → ab — 1 concatenation operator

str1 = 'a' + 'b' + 'c' → abc — 2 concatenation operator

str1 = 'a' + 'b' + 'c' + 'd' → abcd — 3 concatenation operators

str1 = 'a' + 'b' + ---- → (n-1) concatenation operators

1h

Repetition operator (*)

```
print("PYTHON"*2)
```

PYTHONPYTHON

```
print(2*"PYTHON")
```

PYTHONPYTHON

```
print("PYTHON"*0)
```

```
print("PYTHON\n"*2)
```

PYTHON
PYTHON

```
print("PYTHON"*-1)
```

String comparison operator (==, !=, <=, >=, <, >)

print ("GATE" == "GATE") ⇒ True

print ("GATE" == "gATE") ⇒ False

a = 97 A = 65
b = 98
c = 99

print ("GATE" != "GATE") ⇒ False

print ("GATE" != "gATE") → True

→ print ('y' > 'aarav') True

print ("GATE" <= "GATE") True

print ("GATE" <= "gATE") True

print ("GATE" >= "GATE") True

print ("GATE" > "GATE") False

print ("GATB" < "GATE") False

print ("GATE" < "gATE") True

False print ("GATE" > "GATB") True

False print ("GATE" > "gate")

Membership Operator

print("kas" in "Kashif") = True

print("Kah" in "kashif") = False

⇒ Escape sequence operators (\ , \n, \t, \ooo, \xhh)

print("Today's match is: \"India vs England\"")

⇒ Today's match is: "India vs England"

print ("Today's match is :\'India vs England\'")

Today's match is : 'India vs England'

\n ⇒ print("Hello \n World")

Hello
World

\b ⇒ print("Hello World !\b")

Hello World

print("Hello\b World")

Hell World

\000

6 5 → 16^0
16^1

print("\141") = a

print("\141\142")

ab

1 4 1 → 8^0
8^2 8^1

print("\142") => b

142

64+32+2

= 98

64+32+1

= 97

a - 97
b - 98
c - 99
d - 100
e - 101
f - 102
g - 103
h - 104

\xhh

print(\x65)

65

16^1 16^0

$96+5 = 101$

e

String formatting operator

```
print("Today is Python class")
```
"Today is Python class"

```
score= 100.5
print("score is %f" %score)
```
score is 100.5

```
subject = "Python" Java
print("Today is %s class" %subject)
```
Today is Python class

Today is Java class

```
a= 16 01101
   14
   10
```

```
name="Ravi"
age=26
print("I am %s and my age is %d" %(name, age))
```
I am Ravi and my age is 26.

String Slicing

Str1 = "HELLO WORLD"

print (str1[2:5]) ⇒ LLO

str1[start : end]

print(str1[:]) ⇒ HELLO WORLD

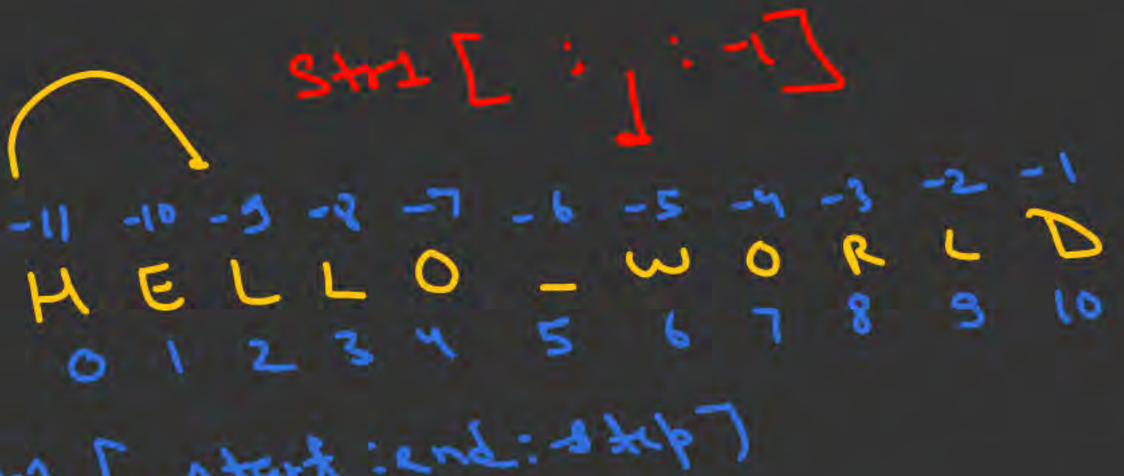
print (str1[2:]) ⇒ LLO WORLD

print (str1[: 5]) ⇒ HELLO

print (str1[: :] ⇒ HELLO WORLD

print (str1[: :2] ⇒ HLOWRD

str1[: : -1][: : -1]



str1 [start : end : step]

print (str1 [-1 : -11 : -1]

print (str1 [: : -1] (reverse order)

print (str1 [-10 : -5 :]

ELLO

```
print("I am {} and my age is {}".format('Ravi', 26))
```

I am Ravi and my age is 26

```
print("I am {0} and my age is {0}".format('Ravi', 26))
```

I am Ravi and my age is Ravi

```
print("I am {name} and my age is {age}".format(
    name='Ravi', age=26))
```

I am Ravi and my age is 26.

Q1) S = "GATE2026"

print(S[::-1][2:5])

0 1 2 3 4 5 6 7

6 2 0 2 E T A G

O2E

S = "data" ⇒ atad

print(S + S[::-1][1:]) = datatad

data + tad

Q2) S = "abc"

S[0] = 'A'

print(S)

A) Abc

B) abc

C) Error

String is Immutable

D) ['A', 'b', 'c']

```
s = "mississippi"
count = 0
for i in range(len(s)):
    if s[i:i+2] == "ss":
        count += 1
print(count)
```

2

i=0	i=1	i=2	i=3
s[0:2]	s[1:3]	s[2:4]	s[3:5]
mi	iss	ss	sis

```
s = "abcde"
print(s[::2] + s[1::2])
```

s[::2] → ace, s[1::2] → bd

0	1	2	3	4
a	b	c	d	e

ace + bd = acebd

```
s = "abcba"
print(s == s[::-1])
```

True

returns of s

THANK - YOU