Module 6: Python Strings

String:

- String represents group of characters which are enclosed in single quotes or double quotes
- If string occupies several lines then we can use triple single quotes or triple double quotes.
- Strings in python are immutable meaning the value of the object cannot be changed.

String and Operators:

Operator	Description
*	Repetition ➔ creates a new string concatenating multiple copies of the same string.
+	Concatenation ➔ adds values on either side of the operator.
In	Membership ➔ returns true if a character exists in the string.
Relational Operators	It compares the Unicode values and returns either True or False.

s1 = 'Vishal'; s2 = 'Vimal'

r1 = s1 * 2; print(r1) ---→

print(s2 * 3) -------→

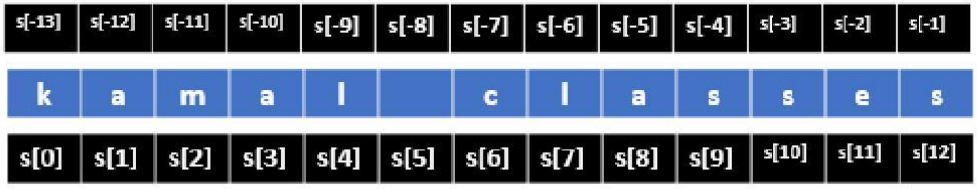
r2 = s1 + s2; print(r2) -----→

print('Vi' in s1) ----→

print('Ma' in s2) ---→

String and Index:

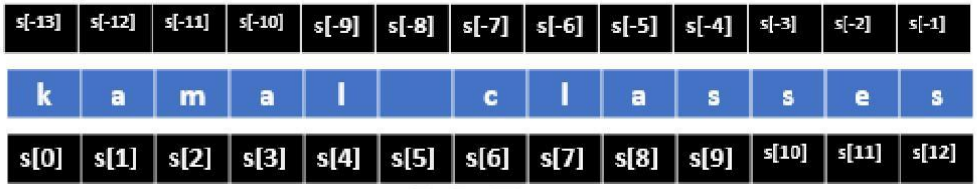
- ✓ Index represents position number of an element in a string.
- ✓ Python supports +ve indexing which starts from 0.
- ✓ Python also supports –ve indexing which starts from -1.
- ✓ If index is not in the range then we get IndexError.



str	kamal classes
print(str)	
print(str[0])	
print(str[4])	
print(str[20])	
print(str[-1])	
print(str[-5])	

String and Slice:

- ✓ Slice: it represents a piece of the string.
- ✓ Variations of slice:
  1. **stringname[start:stop]**
  2. stringname[start:stop:stepsize]
- ✓ start is always inclusive and stop is always exclusive.
- ✓ To go forward stepsize should be +ve and to go back stepsize should be -ve.
- ✓ start/stop/stepsize should be integer else TypeError.
- ✓ Stepsize cannot be 0 else ValueError.



str	kamal classes
print(str[:])	
print(str[3:])	
print(str[:3])	
print(str[3:9])	
print(str[-4:])	
print(str[:-9])	

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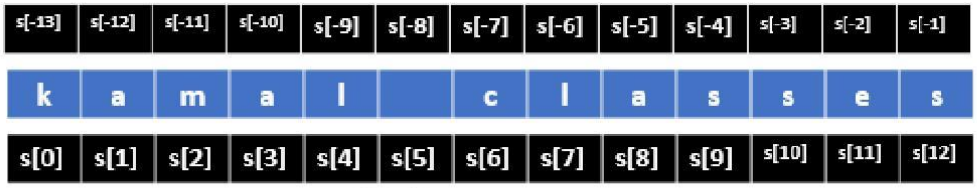

str	kamal classes
print(str[::])	
print(str[::2])	
print(str[2:10:3])	
print(str[3:5:2])	
print(str[-2:-6:1])	
print(str[-2:-6:-1])	

String Methods:

String Testing methods ➔ isalnum(), isalpha(), isdigit(), islower(), isupper(), istitle() & isspace():

- isalnum(): if all characters are alphanumberic (A-Z, a-z, 0 -9) then it returns True else False.
- isalpha(): if all characters are alphanumberic (A-Z, a-z) then it returns True else False.
- isdigit(): if all characters are digits(0-9) then it returns True else False.
- islower(): if all characters are in lower case then it returns True else False.
- isupper(): if all characters are in upper case then it returns True else False.
- istitle(): if each word in the string starts with capital letter then it returns True else False.
- isspace(): if string contains only space then it returns True else False.

Changing case of a string ➔ upper(), lower(), swapcase() & title()

- upper(): it is for converting all characters into uppercase.
- lower(): it is for converting all characters into lowercase.
- swapcase(): it is for converting capital letters into small letters and vice-versa.
- title(): it is for converting each word in the string to start with capital letter.
- capitalize(): it converts the first character of a string to capital (uppercase) letter.

Module 6: Python String Test

Q1) What is the output of the following code?

```
example = "snow world"
example[3] = 's'
print(example)
```

Options:

a) snow
b) snow world
c) Error
d) snos world

Solution:

Q2) What is the output of `"hello"+1+2+3` ?

Options:

a) hello123
b) hello
c) Error
d) hello6

Solution:

Q3) You write the following code:

```
a = 'Config1'
print(a)
b = a
a += 'Config2'
print(a)
print(b)
```

Use the drop-down menus to select the answer choice that answers each question based on the information presented in the code segment. Answer Area

What is displayed after the first print? [1] _____.
What is displayed after the second print? [2] _____.
What is displayed after the third print? [3] _____.

Options:

[1]	A. Config1	B. Config1Config2	C. Config2
[2]	A. Config1	B. Config1Config2	C. Config2
[3]	A. Config1	B. Config1Config2	C. Config2

Solution:

Q4) During school days, you volunteer to explain some basic programming concepts to younger siblings. You want to introduce the concept of data types in Python. You create the following two code segments.

Code Segment 1

```
x1 = "20"
y1 = 3
a = x1 * y1
```

Code Segment 2

```
x2 = 6
y2 = 4
b = x2 / y2
```

Which two of the following statements are true?

Options:

A. After executing code segment 1, the data type of variable a is str.
B. After executing code segment 1, the data type of variable a is float.
C. After executing code segment 1, the data type of variable a is int.
D. After executing code segment 2, the data type of variable b is int.
E. After executing code segment 2, the data type of variable b is float.
F. After executing code segment 2, the data type of variable b is double.

Solution:

Q5) you are creating a Python program that shows a congratulations message to employees on their service anniversary. You need to calculate the number of years of service and print a congratulatory message. Complete the following program:

```
01 start = input("how old were you on your start date ")
02 end = input("how old are you today ")
03 _____
```

What code should be written at line 03?

Options:

A. print("Congratulations on" + (int(end)-int(start)) + "years of service!")

B. print("Congratulations on" + str(int(end)-int(start)) + "years of service!")

C. print("Congratulations on" + int(end - start) + "years of service!")

D. print("Congratulations on" + str(end - start) + "years of service!")

Solution:

Q6) Following set of commands are executed in shell, what will be the output?

```
str="hello"
str[:2]
```

Options:

a) he
b) lo
c) olleh
d) hello

Solution:

Q7) What is the output when following code is executed ?

```
str1 = 'hello'
str1[-1:]
```

Options:

a) olleh
b) hello
c) h
d) o

Solution:

Q8) You have the following string:

```
alph = "abcdefghijklnnopqrstuvwxyz"
```

You need to evaluate the result of performing various slicing operations. Match the result to the slicing operation. To answer, drag the appropriate result from the column on the left to its slicing operation on the right. Each result may be used once, more than once, or not at all.

Results

A. zwtqnkheb
B. pmjg
C. defghijklmno
D. ponmlkjihgfe
E. defghijklmnop
F. dgjm
G. olif
H. ""

Options

[1] alph[3:15]
[2] alph[3:15:3]
[3] alph[3:15:-3]
[4] alph[15:3:-3]
[5] alph[15:3]
[6] alph[::-3]

Solution:

Q9) What is the output of the following?

```
print("abc DEF".capitalize())
```

Options:

a) abc def
b) ABC DEF
c) Abc def
d) Abc Def

Solution:

Q10) You are creating a Python script to evaluate input and check for upper and lower case. Which code segments should we use to develop the solution? Select four in order.

A.
```
else:
    print(name, 'is mixed case')
```

B.
```
else:
    print(name, 'is lower case')
```

C.
```
name = input("enter your name")
```

D.
```
else:
    print(name, 'is upper case')
```

E.
```
elif name.upper() == name:
    print(name, 'is all upper case')
```

F.
```
if name.lower() == name:
    print(name, 'is all lower case')
```

Options:

A. C, F, A
B. C, F, A, E
C. C, F, D
D. C, F, E A

Solution: