String – Python 3

Q. What is string?

Ans. A string is traditionally a sequence of characters, either as a literal constant or as some kind of variable. Strings are amongst the most popular types in Python. We can create them simply by enclosing characters in quotes. Python use single quotes and double quotes to create the string. Creating strings is as simple as assigning a value to a variable. For example −

St1 = 'Hello World'

St2 = "Python Programming"

String appearance

Single quote: - st = 'ankit'

Double quote: - st = "ankit"

Triple quote(multi line string):-

```
st = '''hello python

   multi line string '''
```

Accessing Values in Strings

1. **Indexing** : get the single element (Get the character at position)
2. **Slicing** : get the substring (subsequence from the sequential quantity) You can return a range of characters by using the slice syntax.

```
st = "ankit"                    st = "ankit"
d = st[0]                       d = st[0:3]
print(d)  # output is 'a'       print(d)  # output is 'ank'
```

String Length (len()) The len() function returns the length of a string:

```
st = "ankit"

d = len(st)

print(d)  # output is 5
```

String Methods

Python has a set of built-in methods that you can use on strings.

Sr.No.	Methods & Description
1	capitalize() Capitalizes first letter of string
2	center(width, fillchar) Returns a string padded with *fillchar* with the original string centered to a total of *width* columns.
3	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.
4	decode(encoding = 'UTF-8',errors = 'strict') Decodes the string using the codec registered for encoding. encoding defaults to the default string encoding.
5	encode(encoding = 'UTF-8',errors = 'strict') Returns encoded string version of string; on error, default is to raise a ValueError unless errors is given with 'ignore' or 'replace'.
6	endswith(suffix, beg = 0, end = len(string)) Determines if string or a substring of string (if starting index beg and ending index end are given) ends with suffix; returns true if so and false otherwise.
7	find(str, beg = 0 end = len(string)) 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.
8	index(str, beg = 0, end = len(string)) Same as find(), but raises an exception if str not found.
9	isalnum()

	Returns true if string has at least 1 character and all characters are alphanumeric and false otherwise.
11	isalpha() Returns true if string has at least 1 character and all characters are alphabetic and false otherwise.
12	isdigit() Returns true if string contains only digits and false otherwise.
13	islower() Returns true if string has at least 1 cased character and all cased characters are in lowercase and false otherwise.
14	isnumeric() Returns true if a unicode string contains only numeric characters and false otherwise.
15	isspace() Returns true if string contains only whitespace characters and false otherwise.
16	istitle() Returns true if string is properly "titlecased" and false otherwise.
17	isupper() Returns true if string has at least one cased character and all cased characters are in uppercase and false otherwise.
18	join(seq) Merges (concatenates) the string representations of elements in sequence seq into a string, with separator string.
19	len(string) Returns the length of the string
20	ljust(width[, fillchar])

	Returns a space-padded string with the original string left-justified to a total of width columns.
21	lower() Converts all uppercase letters in string to lowercase.
22	lstrip() Removes all leading whitespace in string.
23	maketrans() Returns a translation table to be used in translate function.
26	replace(old, new [, max]) Replaces all occurrences of old in string with new or at most max occurrences if max given.
27	rfind(str, beg = 0,end = len(string)) Same as find(), but search backwards in string.
28	rindex(str, beg = 0, end = len(string)) Same as index(), but search backwards in string.
29	rjust(width,[, fillchar]) Returns a space-padded string with the original string right-justified to a total of width columns.
30	rstrip() Removes all trailing whitespace of string.
31	split(str="", num=string.count(str)) Splits string according to delimiter str (space if not provided) and returns list of substrings; split into at most num substrings if given.
32	splitlines(num=string.count('\n')) Splits string at all (or num) NEWLINEs and returns a list of each line with NEWLINEs removed.

33	startswith(str, beg=0,end=len(string)) Determines if string or a substring of string (if starting index beg and ending index end are given) starts with substring str; returns true if so and false otherwise.
34	strip([chars]) Performs both lstrip() and rstrip() on string
35	swapcase() Inverts case for all letters in string.
36	title() Returns "titlecased" version of string, that is, all words begin with uppercase and the rest are lowercase.
37	translate(table, deletechars="") Translates string according to translation table str(256 chars), removing those in the del string.
38	upper() Converts lowercase letters in string to uppercase.
39	zfill (width) Returns original string leftpadded with zeros to a total of width characters; intended for numbers, zfill() retains any sign given (less one zero).
40	isdecimal() Returns true if a unicode string contains only decimal characters and false otherwise.

String Special Operators

Assume string variable **a** holds 'Hello' and variable **b** holds 'Python', then –

Operator	Description	Example
+	Concatenation - Adds values on either side of the operator	a + b will give HelloPython
*	Repetition - Creates new strings, concatenating multiple copies of the same string	a*2 will give - HelloHello
[]	Slice - Gives the character from the given index	a[1] will give e
[:]	Range Slice - Gives the characters from the given range	a[1:4] will give ell
in	Membership - Returns true if a character exists in the given string	‘H’ in a will give 1
not in	Membership - Returns true if a character does not exist in the given string	M not in a will give 1
r/R	Raw String - Suppresses actual meaning of Escape characters. The syntax for raw strings is exactly the same as for normal strings with the exception of the raw string operator, the letter "r," which precedes the quotation marks. The "r" can be lowercase (r) or uppercase (R) and must be placed immediately preceding the first quote mark.	print (r'\n') prints \n and print (R'\n') prints \n
%	Format - Performs String formatting	Type specific format

Python string basic questions

1) What is String in Python? How to create a string in Python?
2) How to access characters in a string?
3) How to change or delete a string?
4) Concatenation of Two or More Strings
5) Slice a String in Python
6) Iterating Through String Loop
7) Membership (not in)
8) Search Functions
9) What are Common Python String Methods?

Next to basic

1. Find the Frequency of Characters in a String

2. Find the Number of Vowels, Consonants, Digits and White space in a String

3. Reverse a Sentence by Recursion

4. Find the Length of a String

5. Copy a String

6. Remove all Characters in a String except alphabet

7. Sort Elements in Lexicographical Order (Dictionary Order)

8. Check if a given String is Palindrome

9. Find the Largest & Smallest Word in a String

10. Remove all Characters in Second String which are present in First String

11. Delete All Repeated Words in String

12. Find the Frequency of the Word ‘the’ in a given Sentence

13. Frequency of Substring in the given String

14. Print the Words Ending with Letter ‘s’

15. Print all the duplicates in the input string.

16. Divide a string in N equal parts

17. Remove “b” and “ac” from a given string

18. Check if a given String is Anagram