Q1. In Python 3.X, what are the names and functions of string object types?

| Function Name | Description |
| --- | --- |
| [capitalize()](https://www.geeksforgeeks.org/string-capitalize-python/) | Converts the first character of the string to a capital (uppercase) letter |
| [casefold()](https://www.geeksforgeeks.org/casefold-string-python/) | Implements caseless string matching |
| [center()](https://www.geeksforgeeks.org/string-center-python/) | Pad the string with the specified character. |
| [count()](https://www.geeksforgeeks.org/python-string-count/) | Returns the number of occurrences of a substring in the string. |
| [encode()](https://www.geeksforgeeks.org/python-strings-encode-method/) | Encodes strings with the specified encoded scheme |
| [endswith()](https://www.geeksforgeeks.org/string-endswith-python/) | Returns “True” if a string ends with the given suffix |
| [expandtabs()](https://www.geeksforgeeks.org/python-expandtabs-method/) | Specifies the amount of space to be substituted with the “\t” symbol in the string |
| [find()](https://www.geeksforgeeks.org/python-string-find/) | Returns the lowest index of the substring if it is found |
| [format()](https://www.geeksforgeeks.org/python-format-function/) | Formats the string for printing it to console |
| [format\_map()](https://www.geeksforgeeks.org/python-string-format_map/) | Formats specified values in a string using a dictionary |
| [index()](https://www.geeksforgeeks.org/python-string-index-applications/) | Returns the position of the first occurrence of a substring in a string |
| [isalnum()](https://www.geeksforgeeks.org/python-string-isalnum/) | Checks whether all the characters in a given string is alphanumeric or not |
| [isalpha()](https://www.geeksforgeeks.org/python-string-isalpha-application/) | Returns “True” if all characters in the string are alphabets |
| [isdecimal()](https://www.geeksforgeeks.org/python-string-isdecimal/) | Returns true if all characters in a string are decimal |
| [isdigit()](https://www.geeksforgeeks.org/python-string-isdigit-application/) | Returns “True” if all characters in the string are digits |
| [isidentifier()](https://www.geeksforgeeks.org/python-string-isidentifier/) | Check whether a string is a valid identifier or not |
| [islower()](https://www.geeksforgeeks.org/python-string-islower-method/) | Checks if all characters in the string are lowercase |
| [isnumeric()](https://www.geeksforgeeks.org/python-string-isnumeric-application/) | Returns “True” if all characters in the string are numeric characters |
| [isprintable()](https://www.geeksforgeeks.org/isprintable-python-application/) | Returns “True” if all characters in the string are printable or the string is empty |
| [isspace()](https://www.geeksforgeeks.org/python-string-isspace-application/) | Returns “True” if all characters in the string are whitespace characters |
| [istitle()](https://www.geeksforgeeks.org/python-string-istitle/) | Returns “True” if the string is a title cased string |
| [isupper()](https://www.geeksforgeeks.org/python-string-isupper-method/) | Checks if all characters in the string are uppercase |
| [join()](https://www.geeksforgeeks.org/join-function-python/) | Returns a concatenated String |
| [ljust](https://www.geeksforgeeks.org/string-rjust-ljust-python/)() | Left aligns the string according to the width specified |
| [lower()](https://www.geeksforgeeks.org/python-string-lower/) | Converts all uppercase characters in a string into lowercase |
| [lstrip()](https://www.geeksforgeeks.org/python-string-lstrip-method/) | Returns the string with leading characters removed |
| [maketrans](https://www.geeksforgeeks.org/python-maketrans-translate-functions/)() | Returns a translation table |
| [partition()](https://www.geeksforgeeks.org/string-partition-python/) | Splits the string at the first occurrence of the separator |
| [replace()](https://www.geeksforgeeks.org/python-string-replace/) | Replaces all occurrences of a substring with another substring |
| [rfind()](https://www.geeksforgeeks.org/python-string-rfind/) | Returns the highest index of the substring |
| [rindex()](https://www.geeksforgeeks.org/string-rindex-python/) | Returns the highest index of the substring inside the string |
| [rjust()](https://www.geeksforgeeks.org/string-rjust-ljust-python/) | Right aligns the string according to the width specified |
| [rpartition()](https://www.geeksforgeeks.org/python-string-rpartition/) | Split the given string into three parts |
| [rsplit()](https://www.geeksforgeeks.org/python-string-rsplit/) | Split the string from the right by the specified separator |
| [rstrip()](https://www.geeksforgeeks.org/python-string-rstrip/) | Removes trailing characters |
| [splitlines()](https://www.geeksforgeeks.org/python-string-splitlines/) | Split the lines at line boundaries |
| [startswith()](https://www.geeksforgeeks.org/python-string-startswith/) | Returns “True” if a string starts with the given prefix |
| [strip()](https://www.geeksforgeeks.org/python-string-strip/) | Returns the string with both leading and trailing characters |
| [swapcase()](https://www.geeksforgeeks.org/python-string-swapcase/) | Converts all uppercase characters to lowercase and vice versa |
| [title()](https://www.geeksforgeeks.org/title-in-python/) | Convert string to title case |
| [translate()](https://www.geeksforgeeks.org/python-string-translate/) | Modify string according to given translation mappings |
| [upper()](https://www.geeksforgeeks.org/python-string-upper/) | Converts all lowercase characters in a string into uppercase |
| [zfill()](https://www.geeksforgeeks.org/python-string-zfill/) | Returns a copy of the string with ‘0’ characters padded to the left side of the string |

Q2. How do the string forms in Python 3.X vary in terms of operations?

Ans:

Concatenation of two or more strings.

Extracting or slicing partial strings from string values.

Adding or removing spaces.

Converting to lower or upper case.

Formatting strings using string formatters.

Finding and/or replacing a text in the given string with some other text.

Q3. In 3.X, how do you put non-ASCII Unicode characters in a string?

Ans:

s = b'6\xc2\xa0918\xc2\xa0417\xc2\xa0712'

print(s.decode('latin-1')) # incorrectly decoded

u = s.decode('utf8') # correctly decoded

print(u)

print(u.replace('\N{NO-BREAK SPACE}','\_'))

print(u.replace('\xa0','-')) # \xa0 is Unicode for NO-BREAK SPACE

Q4. In Python 3.X, what are the key differences between text-mode and binary-mode files?

Ans: In text mode, the program writes data to file as text characters, and in binary mode, the program writes data to files as 0/1 bits

Q5. How can you interpret a Unicode text file containing text encoded in a different encoding than your platform's default?

Q6. What is the best way to make a Unicode text file in a particular encoding format?

Ans:

import codecs

import sys

UTF8Writer = codecs.getwriter('utf8')

sys.stdout = UTF8Writer(sys.stdout)

print(u'e with obfuscation: é')

Run it and pipe output to file:

python foo.py > tmp.txt

Q7. What qualifies ASCII text as a form of Unicode text?

Ans: Python 3 is all-in on Unicode and UTF-8 specifically. Here’s what that means:

Python 3 source code is assumed to be UTF-8 by default. This means that you don’t need # -\*- coding: UTF-8 -\*- at the top of .py files in Python 3.

All text (str) is Unicode by default. Encoded Unicode text is represented as binary data (bytes). The str type can contain any literal Unicode character, such as "Δv / Δt", all of which will be stored as Unicode.

[Python 3 accepts many Unicode code points in identifiers](https://docs.python.org/3/reference/lexical_analysis.html#identifiers), meaning résumé = "~/Documents/resume.pdf" is valid if this strikes your fancy.

Python’s [re module](https://docs.python.org/3/library/re.html) defaults to the re.UNICODE flag rather than re.ASCII. This means, for instance, that r"\w" matches Unicode word characters, not just ASCII letters.

The default encoding in str.encode() and bytes.decode() is UTF-8.

There is one other property that is more nuanced, which is that the default encoding to the built-in open() is platform-dependent and depends on the value of locale.getpreferredencoding():

Q8. How much of an effect does the change in string types in Python 3.X have on your code?

Ans:

In Python 2, an implicit str type is ASCII. But in Python 3.x implicit str type is Unicode.

Otherwise very little effect in terms of string.