String Module

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String Constants

Introduction

- The string module in Python provides a **collection** of **constants**, and **functions** that are useful for working with strings.

- It can be **used** in:
  - Text-processing
  - Pattern Matching
  - Cleaning up data

- It's part of Python's **standard library**, so no additional installations are required

Overview

The string module contains a **set of constants**:

- Ascii letters
- Digits
- Punctuations
- Printables
- Whitespaces

and **helper functions**:

- Template
- Formatter
- Capwords

To access it, use ***`import string`***

ascii_letters

A string containing all ASCII letters (a-z and A-Z).

Python	Output

`import string`
`print(string.ascii_letters)`
	`abcdefghijklmnopqr`
	`stuvwxyzABCDEFGHIJ`
	`KLMNOPQRSTUVWXYZ`

ascii_lowercase

A string containing all lowercase ASCII letters.

Python	Output
`import string` `print(string.ascii_lowercase)`	`abcdefghijklmnopq` `rstuvwxyz`

ascii_uppercase

A string containing all lowercase ASCII letters.

Python	Output
`import string` `print(string.ascii_uppercase)`	ABCDEFGHIJKLMNO PQRSTUVWXYZ

digits

A string containing all digit characters **(0-9).**

Python	Output
`import string` `print(string.digits)`	`0123456789`

hexdigits

A string containing all hexadecimal digit characters **(0-9 and a-f or A-F).**

Python	Output
`import string` `print(string.hexdigits)`	`0123456789abcdefABCDEF`

octdigits

A string containing all octal digit characters **(0-7).**

Python	Output
`import string` `print(string.octdigits)`	`01234567`

punctuation

A string containing all **punctuation** characters.

Python	Output
`import string` `print(string.punctuation)`	`!"#$%&'()*+,-` `./:;<=>?@[\]^_`{|}~`

whitespace

A string containing **all characters** that are considered **whitespace** (space, tab, newline, etc.).

Python	Output
`import string` `print(string.whitespace)`	`\t\n\r\x0b\x0c`

printable

A string containing **all characters** that are considered printable (includes digits, letters, punctuation, and whitespace).

Python	Output
`import string` `print(string.printable)`	`0123456789abcdefghijk` `lmnopqrstuvwxyzABCDEF` `GHIJKLMNOPQRSTUVWXYZ!` `"#$%&'()*+,-` `./:;<=>?@[\]^_`{|}~` `<spaces of all types>`

Summary Table

Collections	Content
ascii_letters	(a-z and A-Z)
ascii_lowercase	a-z
ascii_uppercase	A-Z
digits	(0-9)
hexdigits	(0-9 and a-f or A-F)
octdigits	(0-7)
punctuation	!"#$%&'()*+,./:;<=>?@[\]^_`{|}~-
whitespace	\t\n\r\x0b\x0c
printable	(a-z, A-Z, 0-9)

02

String Functions

String Functions

The string module contains **helper functions**:

- Template Class
- Formatter Class
- Capwords() Function

Template Class

The **string** module includes a **Template** class, which provides an easy and flexible way to perform substitutions in strings.

The **$** symbol is used as a placeholder, which can be replaced using the **substitute()** method.

substitute(): Replaces placeholders with the values provided. Raises a **KeyError** if a placeholder is missing.

safe_substitute(): Similar to **substitute()** but doesn't raise an error if a placeholder is missing; instead, it leaves the placeholder unchanged.

Template Class

Python

```
from string import Template

template = Template(“Course: $item\nPrice:$price")
result = template.substitute(item="Python Mastery
Series", price="₹ 0")
print(result)
```

Output

```
Course: Python Mastery Series
Price:₹ 0
```

Formatter()

The **Formatter** class in the string module is a low-level string formatting class that provides an advanced way to implement custom string formatting, beyond the usual **str.format()** method.

Python	Output

`from string import Formatter`
 	
`formatter = Formatter()`
 	
`print(formatter.format("Hi {}", "amar"))`
	`Hi amar`

capwords()

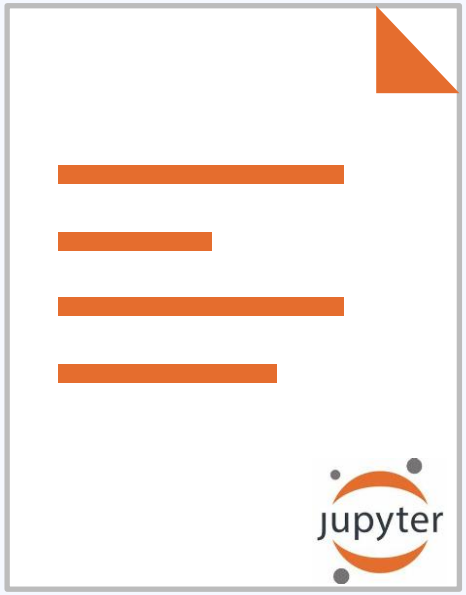
- Capitalizes the first letter of every word
- Lowers the rest of the letters
- Replaces multiple spaces between words with a single space.

Python	Output

`import string`
 	
`text = "    hello,   world   ! "`
`print(string.capwords(text))`
	`Hello, World !`

Use Cases

- Generating random strings (passwords, tokens).
- Filtering characters (e.g., removing punctuation).
- String templating for text replacements.
- Checking if a string contains only specific character sets.



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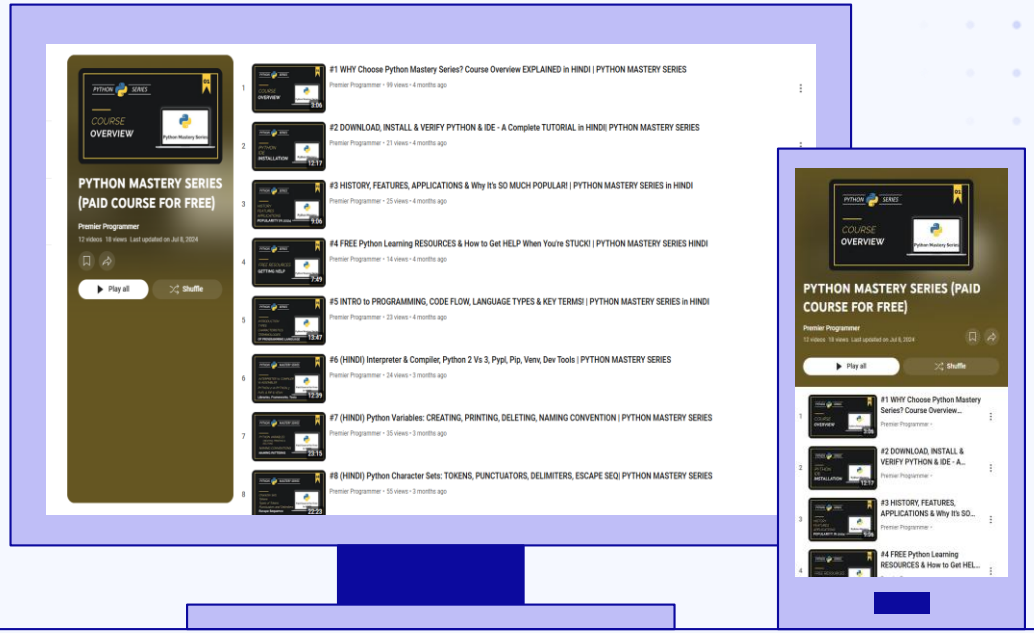

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