

1811/2807/7001ICT Programming Principles

School of Information and Communication Technology
Griffith University

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7 Strings

This section introduces the `str` data type Python uses for characters and text.

7.1 Type `str`

Python stores characters and text in objects of type `str`.

Most languages have separate types for single characters, *e.g.* `char` and `String` in Java, but Python has just the one type.

The characters in Python strings are Unicode characters.

7.1.1 String literals

Literal `str` values are sequences of characters, delimited by either:

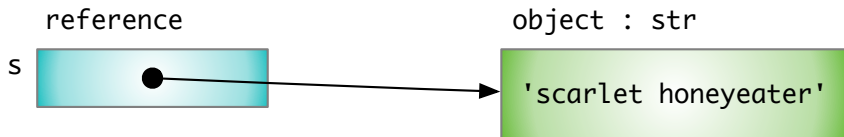
- single quotes (`'`), *e.g.* `'scarlet honeyeater'`;
- double quotes (`"`), *e.g.* `"Myzomela sanguinolenta"`; or
- three double quotes (`"""`), in which case the string may extend over multiple lines, *e.g.*

```
"""Common name: scarlet honeyeater  
   Latin name: Myzomela sanguinolenta  
   Conservation status: least concern"""
```

7.2 String variables

String values may be assigned to variables, in exactly the same way as numbers.

```
>>> s = 'scarlet honeyeater'
>>> s
'scarlet honeyeater'
>>> type(s)
<class 'str'>
>>>
```



7.3 Printing strings

String values may be printed, just like numbers.

Often we print a string and a number to label our outputs.

```
# file: molWts1.py
# Print the molecular weights of H2O and H2O2.

H = 1.00794
O = 15.9994
print("molecular weight of H2O =", H * 2 + O)
print("molecular weight of H2O2 =", 2 * (H + O))
```

```
$ python3 molWts1.py
molecular weight of H2O = 18.01528
molecular weight of H2O2 = 34.01468
$
```

7.4 Joining strings

The plus operator works with strings, not for addition, but for *catenation*.

```
>>> s = "honey"
>>> id(s)
4341957384
>>> s = s + "eater"
>>> s
'honeyeater'
>>> id(s)
4341945840
>>>
```

Since the `id` changed, we can conclude that the original object was not changed, and a new object was created. `str` is immutable.

Section summary

This section covered:

- the type `str` for character and text data;
- the syntax of string literals; and
- how to print and join strings.