

# Python 3 Beginner's Reference Cheat Sheet

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## Main data types

**boolean** = *True / False*  
**integer** = 10  
**float** = 10.01  
**string** = "123abc"  
**list** = [ value1, value2, ... ]  
**dictionary** = { key1:value1, key2:value2, ... }

## Numeric operators

**+** addition  
**-** subtraction  
**\*** multiplication  
**/** division  
**\*\*** exponent  
**%** modulus  
**//** floor division

## Comparison operators

**==** equal  
**!=** different  
**>** higher  
**<** lower  
**>=** higher or equal  
**<=** lower or equal

## Boolean operators

**and** logical AND  
**or** logical OR  
**not** logical NOT

## Special characters

**#** coment  
**\n** new line  
**<char>** scape char

## String operations

**string[i]** retrieves character at position i  
**string[-1]** retrieves last character  
**string[i:j]** retrieves characters in range i to j

## List operations

**list = []** defines an empty list  
**list[i] = x** stores x with index i  
**list[i]** retrieves the item with index i  
**list[-1]** retrieves last item  
**list[i:j]** retrieves items in the range i to j  
**del list[i]** removes the item with index i

## Dictionary operations

**dict = {}** defines an empty dictionary  
**dict[k] = x** stores x associated to key k  
**dict[k]** retrieves the item with key k  
**del dict[k]** removes the item with key k

## String methods

**string.upper()** converts to uppercase  
**string.lower()** converts to lowercase  
**string.count(x)** counts how many times x appears  
**string.find(x)** position of the x first occurrence  
**string.replace(x,y)** replaces x for y  
**string.strip(x)** returns a list of values delimited by x  
**string.join(L)** returns a string with L values joined by string  
**string.format(x)** returns a string that includes formatted x

## List methods

**list.append(x)** adds x to the end of the list  
**list.extend(L)** appends L to the end of the list  
**list.insert(i,x)** inserts x at i position  
**list.remove(x)** removes the first list item whose value is x  
**list.pop(i)** removes the item at position i and returns its value  
**list.clear()** removes all items from the list  
**list.index(x)** returns a list of values delimited by x  
**list.count(x)** returns a string with list values joined by S  
**list.sort()** sorts list items  
**list.reverse()** reverses list elements  
**list.copy()** returns a copy of the list

## Dictionary methods

**dict.keys()** returns a list of keys  
**dict.values()** returns a list of values  
**dict.items()** returns a list of pairs (key,value)  
**dict.get(k)** returns the value associated to the key k  
**dict.pop()** removes the item associated to the key and returns its value  
**dict.update(D)** adds keys-values (D) to dictionary  
**dict.clear()** removes all keys-values from the dictionary  
**dict.copy()** returns a copy of the dictionary

**Legend:** **x,y** stand for any kind of data values, **s** for a string, **n** for a number, **L** for a list where **i,j** are list indexes, **D** stands for a dictionary and **k** is a dictionary key.

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## Built-in functions

<b>print(x, sep='y')</b>	prints x objects separated by y
<b>input(s)</b>	prints s and waits for an input that will be returned
<b>len(x)</b>	returns the length of x (s, L or D)
<b>min(L)</b>	returns the minimum value in L
<b>max(L)</b>	returns the maximum value in L
<b>sum(L)</b>	returns the sum of the values in L
<b>range(n1,n2,n)</b>	returns a sequence of numbers from n1 to n2 in steps of n
<b>abs(n)</b>	returns the absolute value of n
<b>round(n1,n)</b>	returns the n1 number rounded to n digits
<b>type(x)</b>	returns the type of x (string, float, list, dict ...)
<b>str(x)</b>	converts x to string
<b>list(x)</b>	converts x to a list
<b>int(x)</b>	converts x to a integer number
<b>float(x)</b>	converts x to a float number
<b>help(s)</b>	prints help about x
<b>map(function, L)</b>	Applies function to values in L

## Conditional statements

```
if <condition> :  
    <code>  
else if <condition> :  
    <code>  
...  
else:  
    <code>  
  
if <value> in <list>:
```

## Data validation

```
try:  
    <code>  
except <error>:  
    <code>  
else:  
    <code>
```

## Working with files and folders

```
import os  
os.getcwd()  
os.makedirs(<path>)  
os.chdir(<path>)  
os.listdir(<path>)
```

## Loops

```
while <condition>:  
    <code>  
  
for <variable> in <list>:  
    <code>  
  
for <variable> in  
    range(start,stop,step):  
        <code>  
  
for key, value in  
    dict.items():  
        <code>
```

## Loop control statements

<b>break</b>	finishes loop execution
<b>continue</b>	jumps to next iteration
<b>pass</b>	does nothing

## Running external programs

```
import os  
os.system(<command>)
```

## Functions

```
def function(<params>):  
    <code>  
    return <data>
```

## Modules

```
import module  
module.function()  
  
from module import *  
function()
```

## Reading and writing files

```
f = open(<path>,'r')  
f.read(<size>)  
f.readline(<size>)  
f.close()  
  
f = open(<path>,'r')  
for line in f:  
    <code>  
f.close()  
  
f = open(<path>,'w')  
f.write(<str>)  
f.close()
```

**Legend:** x,y stand for any kind of data values, s for a string, n for a number, L for a list where i,j are list indexes, D stands for a dictionary and k is a dictionary key.