

Python For Data Science Cheat Sheet

Python Basics

Learn More Python for Data Science [Interactively](https://www.datacamp.com) at www.datacamp.com



Variables and Data Types

Variable Assignment

```
>>> x=5
>>> x
5
```

Calculations With Variables

```
>>> x+2
7
>>> x-2
3
>>> x*2
10
>>> x**2
25
>>> x%2
1
>>> x/float(2)
2.5
```

Sum of two variables	Subtraction of two variables	Multiplication of two variables	Exponentiation of a variable	Remainder of a variable	Division of a variable
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Types and Type Conversion

str ()	'5', '3.45', 'True'	Variables to strings
int ()	5, 3, 1	Variables to integers
float ()	5.0, 1.0	Variables to floats
bool ()	True, True, True	Variables to booleans

Asking For Help

```
>>> help(str)
```

Strings

```
>>> my_string = 'thisStringIsAwesome'
>>> my_string
'thisStringIsAwesome'
```

String Operations

```
>>> my_string * 2
'thisStringIsAwesomethisStringIsAwesome'
>>> my_string + 'Init!'
'thisStringIsAwesomeInit!'
>>> 'm' in my_string
True
```

Lists

Also see [NumPy Arrays](#)

```
>>> a = 'is'
>>> b = 'nice'
>>> my_list = ['my', 'list', a, b]
>>> my_list2 = [[4,5,6,7], [3,4,5,6]]
```

Selecting List Elements

Index starts at 0

Subset

```
>>> my_list[1]
>>> my_list[-3]
Slice
```

Select item at index 1	Select 3rd last item
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```
>>> my_list[1:3]
>>> my_list[1:]
>>> my_list[:3]
>>> my_list[:]
```

Select items at index 1 and 2	Select items after index 0	Select items before index 3	Copy my_list
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Subset Lists of Lists

```
>>> my_list2[1][0]
>>> my_list2[1][:2]
```

my_list[list[itemOfList]

List Operations

```
>>> my_list + my_list
['my', 'list', 'is', 'nice', 'my', 'list', 'is', 'nice']
>>> my_list * 2
['my', 'list', 'is', 'nice', 'my', 'list', 'is', 'nice']
>>> my_list2 > 4
True
```

List Methods

```
>>> my_list.index(a)
>>> my_list.count(a)
>>> my_list.append('i')
>>> my_list.remove('i')
>>> del(my_list[0:1])
>>> my_list.reverse()
>>> my_list.extend('i')
>>> my_list.pop(-1)
>>> my_list.insert(0, 'i')
>>> my_list.sort()
```

Get the index of an item	Count an item	Append an item at a time	Remove an item	Remove an item	Reverse the list	Append an item	Remove an item	Insert an item	Sort the list
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Libraries

Import Libraries

```
>>> import numpy
>>> import numpy as np
>>> import math
>>> from math import pi
```

pandas
Data analysis

NumPy
Scientific computing

Machine learning

matplotlib
2D plotting

Install Python

ANACONDA
Leading open data science platform
powered by Python

spyder
Free IDE that is included with Anaconda

jupyter
Create and share documents with live code, visualizations, text, ...

NumPy Arrays

Also see [Lists](#)

```
>>> my_list = [1, 2, 3, 4]
>>> my_array = np.array(my_list)
>>> my_2darray = np.array([[1,2,3], [4,5,6]])
```

Selecting NumPy Array Elements

Index starts at 0

Subset

```
>>> my_array[1]
2
>>> my_array[1]
```

Select item at index 1

Slice

```
>>> my_array[0:2]
array([1, 2])
>>> my_array[0:2]
array([1, 2])
>>> my_2darray[:,0]
array([1, 4])
```

Select items at index 0 and 1	my_2darray[rows, columns]
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NumPy Array Operations

```
>>> my_array > 3
array([False, False, False,  True], dtype=bool)
>>> my_array * 2
array([2, 4, 6, 8])
>>> my_array + np.array([5, 6, 7, 8])
array([6, 8, 10, 12])
```

NumPy Array Functions

>>> my_array.shape	Get the dimensions of the array
>>> np.append(other_array)	Append items to an array
>>> np.insert(my_array, 1, 5)	Insert items in an array
>>> np.delete(my_array, [1])	Delete items in an array
>>> np.mean(my_array)	Mean of the array
>>> np.median(my_array)	Median of the array
>>> my_array.corrcoef()	Correlation coefficient
>>> np.std(my_array)	Standard deviation

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