



# Python For Data Science


## Basics Cheat Sheet

Learn Python Basics online at [www.DataCamp.com](https://www.DataCamp.com)

### > Variables and Data Types

Variable Assignment
<pre>&gt;&gt;&gt; x=5 &gt;&gt;&gt; x 5</pre>
Calculations With Variables
<pre>&gt;&gt;&gt; x+2 #Sum of two variables 7 &gt;&gt;&gt; x-2 #Subtraction of two variables 3 &gt;&gt;&gt; x*2 #Multiplication of two variables 10 &gt;&gt;&gt; x**2 #Exponentiation of a variable 25 &gt;&gt;&gt; x%2 #Remainder of a variable 1 &gt;&gt;&gt; x/float(2) #Division of a variable 2.5</pre>
Types and Type Conversion
<pre>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</pre>

### > Libraries

			
Data analysis	Scientific computing	2D plotting	Machine learning
Import Libraries			
<pre>&gt;&gt;&gt; import numpy &gt;&gt;&gt; import numpy as np</pre>			
Selective import			
<pre>&gt;&gt;&gt; from math import pi</pre>			

### > Strings

<pre>&gt;&gt;&gt; my_string = 'thisStringIsAwesome' &gt;&gt;&gt; my_string 'thisStringIsAwesome'</pre>	
String Operations	
<pre>&gt;&gt;&gt; my_string * 2 'thisStringIsAwesomethisStringIsAwesome' &gt;&gt;&gt; my_string + 'Innit' 'thisStringIsAwesomeInnit' &gt;&gt;&gt; 'm' in my_string True</pre>	
String Indexing	Index starts at 0
<pre>&gt;&gt;&gt; my_string[3] &gt;&gt;&gt; my_string[4:9]</pre>	
String Methods	
<pre>&gt;&gt;&gt; my_string.upper() <i>#String to uppercase</i> &gt;&gt;&gt; my_string.lower() <i>#String to lowercase</i> &gt;&gt;&gt; my_string.count('w') <i>#Count String elements</i> &gt;&gt;&gt; my_string.replace('e', 'i') <i>#Replace String elements</i> &gt;&gt;&gt; my_string.strip() <i>#Strip whitespaces</i></pre>	

### > NumPy Arrays

```
>>> 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] #Select item at index 1
2
```

### Slice

```
>>> my_array[0:2] #Select items at index 0 and 1
array([1, 2])
```

### Subset 2D Numpy arrays

```
>>> my_2darray[:,0] #my_2darray[rows, columns]
array([1, 4])
```

### Numpy Array Operations

<pre>&gt;&gt;&gt; my_array &gt; 3 array([False, False, False,  True], dtype=bool) &gt;&gt;&gt; my_array * 2 array([2, 4, 6, 8]) &gt;&gt;&gt; my_array + np.array([5, 6, 7, 8]) array([6, 8, 10, 12])</pre>
--

### Numpy Array Functions

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

### > Lists

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

### Slice

```
>>> my_list[1:3] #Select items at index 1 and 2
>>> my_list[1:] #Select items after index 0
>>> my_list[:3] #Select items before index 3
>>> my_list[:] #Copy my_list
```

### Subset Lists of Lists

```
>>> my_list2[1][0] #my_list[list][itemOfList]
>>> my_list2[1][:2]
```




### List Operations

<pre>&gt;&gt;&gt; my_list + my_list ['my', 'list', 'is', 'nice', 'my', 'list', 'is', 'nice'] &gt;&gt;&gt; my_list * 2 ['my', 'list', 'is', 'nice', 'my', 'list', 'is', 'nice'] &gt;&gt;&gt; my_list2 &gt; 4 True</pre>
--

### List Methods

<pre>&gt;&gt;&gt; my_list.index(a) #Get the index of an item &gt;&gt;&gt; my_list.count(a) #Count an item &gt;&gt;&gt; my_list.append('!!') #Append an item at a time &gt;&gt;&gt; my_list.remove('!!') #Remove an item &gt;&gt;&gt; del(my_list[0:1]) #Remove an item &gt;&gt;&gt; my_list.reverse() #Reverse the list &gt;&gt;&gt; my_list.extend('!!') #Append an item &gt;&gt;&gt; my_list.pop(-1) #Remove an item &gt;&gt;&gt; my_list.insert(0,'!!') #Insert an item &gt;&gt;&gt; my_list.sort() #Sort the list</pre>
---

### > Python IDEs (Integrated Development Environment)

		
DataCamp Workspace is an in-browser Jupyter IDE	Free IDE that is included with Anaconda	Create and share documents with live code

### > Asking For Help

<pre>&gt;&gt;&gt; help(str)</pre>
-----------------------------------



Learn Data Skills Online at  
[www.DataCamp.com](https://www.DataCamp.com)