Python For Data Science Cheat Sheet **Python Basics**

Variables and Data Types

Variable Assignment

>>>	x=5
>>>	Х
5	

Calculations With Variables

>>> x+2	Sum of two variables
7 >>> x-2	Subtraction of two variables
3 >>> x*2	
10 >>> x**2	Multiplication of two variables
>>> x**2	Exponentiation of a variable
>>> x%2	Remainder of a variable
>>> x/float(2)	Division of a variable
2.5	

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 + 'Innit'
 'thisStringIsAwesomeInnit'
>>> 'm' in my string
```

Lists

```
>>> a = 'is'
>>> b = 'nice'
>>> my list = ['my', 'list', a, b]
>>>  my list2 = [[4,5,6,7], [3,4,5,6]]
```

Selecting List Elements

Also see NumPy Arrays

Subset

```
>>> my list[1]
>>> my list[-3]
Slice
```

>>> my list[1:3] >>> my list[1:] >>> my list[:3]

>>> my list[:] **Subset Lists of Lists**

>>> my list2[1][0] >>> my list2[1][:2]

Index starts at o

Select item at index 1 Select 3rd last item

Select items at index 1 and 2 Select items after index o Select items before index 3 Copy my list

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
```

List Methods

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

String Operations

Index starts at o

```
>>> my string[3]
>>> my string[4:9]
```

String Methods

>>> my_string.upper()	String to uppercase
>>> my_string.lower()	String to lowercase
>>> my_string.count('w')	Count String elements
>>> my_string.replace('e', 'i')	Replace String elements
>>> my string.strip()	Strip whitespaces

Libraries

Import libraries

>>> import numpy

>>> import numpy as np Selective import

>>> from math import pi





Machine learning



4 matplotlib 2D plotting

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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 o

```
Subset
>>> my array[1]
```

Slice

```
>>> my array[0:2]
  array([1, 2])
Subset 2D Numpy arrays
>>> my 2darray[:,0]
  array([1, 4])
```

Select item at index 1

Select items at index 0 and 1

my 2darray[rows, columns]

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
```