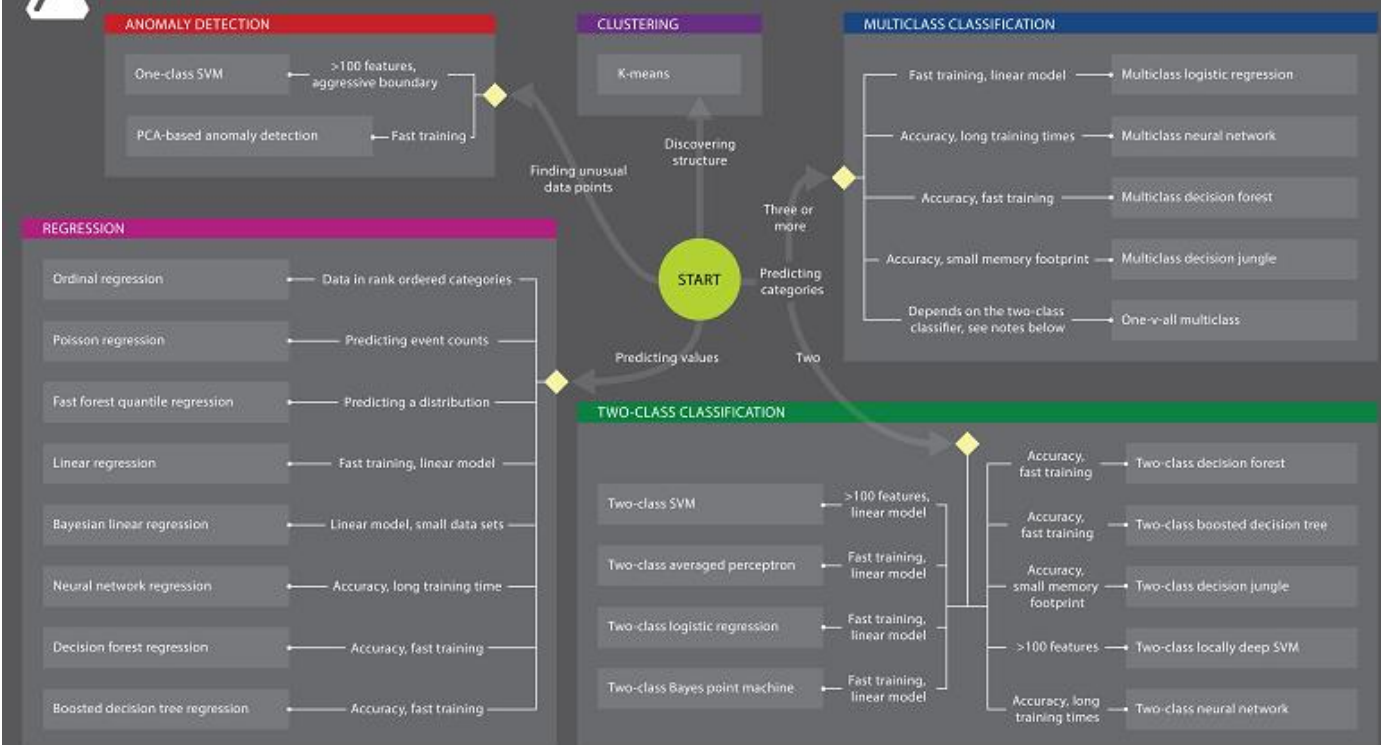




Microsoft Azure Machine Learning: Algorithm Cheat Sheet

This cheat sheet helps you choose the best Azure Machine Learning Studio algorithm for your predictive analytics solution. Your decision is driven by both the nature of your data and the question you're trying to answer.



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Download this poster: <http://aka.ms/MLCheatSheet>

Microsoft

Python For Data Science Cheat Sheet

Python Basics

Learn More Python for Data Science Interactively at www.datacamp.com



Variables and Data Types

Variable Assignment

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

Calculations With Variables

Code	Description
<pre>>>> x+2 7</pre>	Sum of two variables
<pre>>>> x-2 3</pre>	Subtraction of two variables
<pre>>>> x*2 10</pre>	Multiplication of two variables
<pre>>>> x**2 25</pre>	Exponentiation of a variable
<pre>>>> x%2 1</pre>	Remainder of a variable
<pre>>>> x/float(2) 2.5</pre>	Division of a variable

Types and Type Conversion

Function	Example	Description
<code>str()</code>	<code>'5', '3.45', 'True'</code>	Variables to strings
<code>int()</code>	<code>5, 3, 1</code>	Variables to integers
<code>float()</code>	<code>5.0, 1.0</code>	Variables to floats
<code>bool()</code>	<code>True, True, True</code>	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
True
```

Lists

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

Also see NumPy Arrays

Selecting List Elements

Index starts at 0

Code	Description
<pre>Subset >>> my_list[1] >>> my_list[-3]</pre>	Select item at index 1 Select 3rd last item
<pre>Slice >>> my_list[1:3] >>> my_list[1:] >>> my_list[:3] >>> my_list[:]</pre>	Select items at index 1 and 2 Select items after index 0 Select items before index 3 Copy my_list
<pre>Subset Lists of Lists >>> my_list2[1][0] >>> my_list2[1][:2]</pre>	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

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

String Operations

Index starts at 0

```
>>> my_string[3]
>>> my_string[4:9]
```

String Methods

Code	Description
<code>my_string.upper()</code>	String to uppercase
<code>my_string.lower()</code>	String to lowercase
<code>my_string.count('w')</code>	Count String elements
<code>my_string.replace('e', 'i')</code>	Replace String elements
<code>my_string.strip()</code>	Strip whitespace from ends

Libraries

Import libraries

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

pandas
Data analysis

Machine learning

NumPy
Scientific computing

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

Code	Description
<pre>Subset >>> my_array[1] 2</pre>	Select item at index 1
<pre>Slice >>> my_array[0:2] array([1, 2])</pre>	Select items at index 0 and 1
<pre>Subset 2D NumPy arrays >>> my_2darray[:,0] array([1, 4])</pre>	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

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

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