**Python Starter (from Machinelearningmastery)**

**Output**

h

11

hello world

**Strings**

# Strings

data = 'hello world'

print(data[0])

print(len(data))

print(data)

**Numbers**

**Output**

123.1

10

# Numbers

value = 123.1

print(value)

value = 10

print(value)

**Boolean**

**Output**

(True, False)

# Boolean

a = True

b = False

print(a, b)

**Output**

That is fast

value = 99

if value >= 99:

print('That is fast')

elif value > 200:

print('That is too fast')

else:

print('That that is safe')

**Output**

None

# No value

a = None

print(a)

**Output**

(1, 2, 3)

# Multiple Assignment

a, b, c = 1, 2, 3

print(a, b, c)

**Output**

0,1,2,3,4,5,6,7,8,9,

# For-Loop

for i in range(10):

print(i))

# While-Loop

i = 0

while i < 10:

print(i)

i += 1

**Output**

0,1,2,3,4,5,6,7,8,9,

#Tuple

a = (1, 2, 3)

print(a)

**Output**

(1, 2, 3)

**Output**

Zeroth Value: 1

List Length: 4

1

2

3

4

# LIst

mylist = [1, 2, 3]

print("Zeroth Value: %d" % mylist[0])

mylist.append(4)

print("List Length: %d" % len(mylist))

for value in mylist:

print(value)

#dictionary

mydict = {'a': 1, 'b': 2, 'c': 3}

print("A value: %d" % mydict['a'])

mydict['a'] = 11

print("A value: %d" % mydict['a'])

print("Keys: %s" % mydict.keys())

print("Values: %s" % mydict.values())

for key in mydict.keys():

print(mydict[key])

**Output**

A value: 1

A value: 11

Keys: ['a', 'c', 'b']

Values: [11, 3, 2]

11

3

2

# Sum function

def mysum(x, y):

return x + y

# Test sum function

print(mysum(1, 3))

**Output**

4

# define an array

import numpy

mylist = [1, 2, 3]

myarray = numpy.array(mylist)

print(myarray)

print(myarray.shape)

**Output**

(1, 2, 3)

# access values

import numpy

mylist = [[1, 2, 3], [3, 4, 5]]

myarray = numpy.array(mylist)

print(myarray)

print(myarray.shape)

print("First row: %s" % myarray[0])

print("Last row: %s" % myarray[-1])

print("Specific row and col: %s" % myarray[0, 2])

print("Whole col: %s" % myarray[:, 2])

**[[1 2 3]**

**[3 4 5]]**

**(2, 3)**

**First row: [1 2 3]**

**Last row: [3 4 5]**

**Specific row and col: 3**

**Whole col: [3 5]**

import numpy

myarray1 = numpy.array([2, 2, 2])

myarray2 = numpy.array([3, 3, 3])

print("Addition: %s" % (myarray1 + myarray2))

print("Multiplication: %s" % (myarray1 \* myarray2))

**Output**

Addition: [5 5 5]

Multiplication: [6 6 6]

**Matplotlib**

Matplotlib can be used for creating plots and charts.

The library is generally used as follows:

* Call a plotting function with some data (e.g. plot()).
* Call many functions to setup the properties of the plot (e.g. labels and colors).
* Make the plot visible (e.g. show()).

# series

import numpy

import pandas

myarray = numpy.array([1, 2, 3])

rownames = ['a', 'b', 'c']

myseries = pandas.Series(myarray, index=rownames)

print(myseries)

print(myseries[0])

print(myseries['a'])

**Output**

a 1

b 2

c 3

1

1

# basic scatter plot

import matplotlib.pyplot as plt

import numpy

x = numpy.array([1, 2, 3])

y = numpy.array([2, 4, 6])

plt.scatter(x,y)

plt.xlabel('some x axis')

plt.ylabel('some y axis')

plt.show()

**Output**

# basic line plot

import matplotlib.pyplot as plt

import numpy

myarray = numpy.array([1, 2, 3])

plt.plot(myarray)

plt.xlabel('some x axis')

plt.ylabel('some y axis')

plt.show()

**Output**

**Pandas**

print("one column: %s" % mydataframe['one'])

print("one column: %s" % mydataframe.one)

**Output**

one column: a 1

b 4

one column: a 1

b 4

**Output**

one two three

**a**  1 2 3

**b**  4 5 6

# dataframe

import numpy

import pandas

myarray = numpy.array([[1, 2, 3], [4, 5, 6]])

rownames = ['a', 'b']

colnames = ['one', 'two', 'three']

mydataframe = pandas.DataFrame(myarray, index=rownames, columns=colnames)

print(mydataframe)