

Python Basics

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Lists

```
l1 = ['data', 1, True, 2.6, [1,2]]
l2 = [1,3,2]
```

Functions:

len(l2)

Out: 3

min(l2)

max(l2)

Methods:

l2.append(4) # append elements

l2

Out: [1, 3, 2, 4]

l2.pop() # remove elements, default the last one

l2.sort() # sort in order

Indexing and Slicing

Start index is 0!

l1[0]

Out: 'data'

l1[1:3] # excluding the end index

Out: [1, True]

l1[4][1]

Out: 2

Operations:

l1 + l2

Out: ['data', 1, True, 2.6, [1, 2], 1, 3, 2]

Dictionary (key-value pairs)

d1 = {'k1': 'value1', 'k2': 'value2'}

Dictionary Value Query:

d1['k2']

Out: 'value2'

Sets

s1 = {1,2,3,4}

list to set

s2 = set([1,2,3,5])

Methods:

s1.add(5)

s1

Out: {1, 2, 3, 4, 5}

Operations:

s1 - s2

Out: {4}

s1 & s2

Out: {1,2,3}

s1 | s2

Out: {1,2,3,4,5}

Comparison operators

a = 1

b = 2

a == 2 # if a equals 2

Out: False

'2' == b

Out: False

a != b # if a doesn't equal b

Out: True

a < b

Out: True

a >= b

Out: False

and, or, not

(1 == 1) and ('h' == 'h') # if both statements are True

Out: True

(1 == 1) or (2 == 1) # if one of them is True

Out: True

not(1==1) # the opposite of the statement

Out: False

Basic Data Types and Structures

Basic Data Types	Name	Type	Examples
Numeric Types	Integers	int	1 6 1000
	Floating points	float	1.2 2.6 100.5
Text Sequence Type	Strings	str	"hello world" 'data science' "100"
Sequence Types	Lists	list	[1, 'hello', 100.5]
	Tuples	tuple	(1, 'hello', 100.5)
Mapping Type	Dictionaries	dict	{"name": "mango", "price": 1}
Set Type	Sets	set	{1, "a", 'b'}
Boolean Type	Booleans	bool	True False

Fast key to run in Jupyter Notebook: Shift + Enter

Comments: # These are comments

Variables

x = 5

y = 3

z = 'hello world'

Numeric Operations

Addition:

x + y

Out: 8

Multiplication:

x * y

Out: 15

Remainder of division:

x % y

Out: 2

Subtraction:

x - y

Out: 2

Division:

x / y

Out: 1.6666666666666667

To the power of:

x ** y

Out: 125

Strings

a = 'data'

question = 'What are you studying?'

answer = "I'm studying data science."

Functions:

print(a)

Out: data

len(a)

Out: 4

type(a)

Out: str

Methods:

a.upper()

Out: 'DATA'

a.lower()

Out: 'data'

index of the first occurrence

a.find('t')

Out: 2

print('I like {} science'.format(a))

Out: I like data science

Indexing and Slicing:

Start index is 0!

Character: d a t a

Index: 0 1 2 3

Reverse Index: -4 -3 -2 -1

a[0]

Out: 'd'

a[2]

Out: 't'

#string[start:stop:step]

a[1:]

Out: 'ata'

Operations:

print(question + '\n' + answer)

Out:

What are you studying?

I'm studying data science.

in

'x' in ['x','s']

Out: True

'data' not in 'data science'

Out: False

if elif else statement

weather = 'snowing'

if weather == 'sunny':

print("Let's go to the park!")

elif weather == 'cloudy':

print('Maybe we can go to the park, what do you think?')

else:

print("Let's stay at home")

Out: Let's stay at home

Loops

for loop

l = [(1,2),(3,4)]

for v1, v2 in l:

print(v1+v2)

Out:

3

7

while loop

num = 1

while num < 10:

num += 2 # same as num = num + 2

print(num)

Out:

3

5

7

9

11

Define functions

def abs_value(k):

if k > 0:

return k

else:

return -k

abs_value(-5) # call the function with input of -5

Out: 5

import packages/libraries

import packages with alias name:

import numpy as np

import pandas as pd

import functions from a package:

from numpy import arange

More tutorials/cheat sheets

NumPy: [Python NumPy Tutorial: Practical Basics for Data Science](#)Pandas: [Learn Python Pandas for Data Science: Quick Tutorial](#)

Prepared for you by:

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