Cheatography

Python Cheat Sheet

by yunshu (xys) via cheatography.com/130138/cs/25798/

Basics

abs()	absolute value
hash()	hash value
set()	creat a Set object
all()	True if all elements are true
any()	True if any element is true
min()	return minimum
max()	return maximum
divmod(a,b)	return (a//b,a%b)
hex()	hexadecimal
oct()	octal
bin()	binary
dir()	return all attributes of obj
sorted(*iter*)	return a new sorted list from iter
open(p-ath,mode)	open a file
int()	creat an Int object
str()	return the string form
float()	creat a float obj
list()	creat a List obj
isinstance(o-bj,class)	check if obj belongs to class
ord(c)	return ASCII of c
chr(n)	return char of ASCII
sum(iter)	return sum of iter
filter(pred,iter)	return list of elements meeting pred
pow(a,b)	return a^b
callable(obj)	True if obj is callable
type()	return type of obj
zip()	zip('ab','12') -> a1,b2
map(f,xs)	return ys = f(xs)
round()	rounded number

thread

import threading	
t = threading.Thread(t-arget=fun, args = iter,-name=thread name)	creat a thread
t.start()	start thread t
t.join()	join thread t, other threads waiting until t finishes
lock = threading.Lock()	create a lock
lock.acquire()	current thread acquires the lock
lock.release()	current thead release lock

str-library

s1+s2	string concatenation
s*5	repeating 5 times of s
[0] or [:]	subscription and slice
in/not in	member test
r/R	no escape: r'\n' = '\n' (no new line)
%	string formatting (%d <=> integer))
s.capitalize()	capitalize the first char in s
s.count(x,be-g=0,end=len(s)))	count the number of occurence of x in s
s.endswith(suff-ix,beg=0,end=le-n(s))	check if s ends with suffix (within the given area)
s.startswith(prefi-x,beg=0,end=-len(s))	check if s starts with x
s.expandtabs(ta-bsize=8)	expand the "tab" in s to space
s.find(x,beg=0,-end=len(s))	return start index of x in s if x is in s, else -1

str-library (cont)

s.inde-x(x,be-g=0,en-d=len(s))	similar to find, but raises an exception if x is not in s
s.rindex()	
s.rfind()	
s.isal-num()	True if every char(>=1) in s is number or letter
s.isalpha()	True if every char(>=1) in s is letter
s.isdigit()	True if every char(>=1) in s is number
s.isnu-meric()	True if all characters in the string are numeric(>=1)
s.isde-cimal()	Return True if the string is a decimal string(>=1), False otherwise.
s.issp-ace()	True if s only contains space
s.join()	Concatenate any number of strings using s as delimiter
s.upper()	all to uppercase
s.isupper()	True if all cased chars are supercase(>=1)
s.lower()	all to lowercase
s.islower()	True if all cased chars are lowercase(>=1)
s.lstrip()	return a new string leading whitespace removed
s.strip()	Return a copy of the string with leading and trailing whitespace removed

By **yunshu** (xys)
cheatography.com/xys/

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str-library (cont)

s.rstrip()	Return a copy of the string with trailing whitespace removed.
s.split(del,maxsplit = s.count(del))	Return a list of the words in the string, using del as the delimiter string
s.splitlines(keepends)	Return a list of the lines in the string, breaking at line boundaries. Line breaks are not included in the resulting list unless keepends is given and true.
s.swapcase()	lower <-> upper
s.titile()	titilization: all words are capitalized
s.replace(old,new,*max*)	Return a copy with all occurrences of substring old replaced by new

list

[1,2,3]+[4,5,6]	[1,2,3,4,5,6]
arr = [0]*10	Array arr = new Array[10]
l.append(obj)	append obj at end of l
l.count(obj)	count occurence number of obj in l
l.extend(*iter*)	Extend list by appending elements from the iterable
l.index(obj,beg=0,end=len(l))	Return first index of value. Raises ValueError if the value is not present

list (cont)

l.remove(obj)	Remove first occurrence of value. Raises ValueError if the value is not present

l.sort(cmp=None,key=None,reverse=False)

tuple

(1,2)+(3,4)	(1,2,3,4)
(0)*10	(0,0,0,0,0,0,0,0,0,0)

dict (hashtable)

d = {'age':20}	create a dict
d['age'] = 30	add/update value
d.pop(key)	deleting key and value
d.clear()	create a dict
d.get(key,default=None)	get value by key, or default if key not exists
d.has_key(key)	True if d has key
d.items()	a list of (key,value) of d
d.update(d2)	updating (k,v) of d2 to d1
d.pop(key)	delete and return the value pointed by the key
d.popitem()	delete and return a pair of (k,v) randomly

dict features:
1. fast for searching and inserting, which won't be affected by the number of keys
2. occupy a lot of memory

set

s = set([1,2,3])	creat a set
s.add(4)	adding element
s.remove(4)	deleting element
s1 & s2	intersection of sets
s1 | s2	union of sets
s.clear()	clear the set
s.pop()	remove one element randomly

s1.symmetric_difference(s2)

copy

a = li	a: new pointer to li
a = li[:]	first level copy
a = list(li)	first level copy
a = copy.copy(li)	first level copy
a = copy.deepcopy(li)	recursive copy

```
import copy
li = [1,2,3,[4,5]]
```

list generation expression

```
[a+b for a in list1 for b in list2]
```

@property

```
class Student(object):
  @property
  def score(self): return 100
  @score.setter
  def score(self,value): pass
```

the three names (score) should be consistent

regular expression

```
import re
```

re.match(pattern,string,*flags*)	Try to apply the pattern at the start of the string, returning a Match object, or None if no match was found.
re.search(pattern,string,*flag*)	Scan through string looking for a match to the pattern, returning a Match object, or None if no match was found.
matchObject.span()	return (a,b) where a is the start inex and b is the end index of the matching
re.compile(pattern,*flag*)	Compile a regular expression pattern, returning a Pattern object, which can be used in re.match/re.search

parameters

func(*args)	accepting any parameters
func(**kw)	accepting only key word parameters

closure

```
def
create_myFunc_at_runtime(*runtime_para):
  def myFunc(x):
    (return x + runtime_para)
    pass
  return myFunc
```

Build A Class: Test

__slots__ = ('name','age')	this class have only 2 attributes now: name & age
__eq__(self,obj)	override "==" operator
__ne__(self,obj)	!=
__le__(self,o)	<=
__ge__(self,o)	>=
__lt__(self,o)	<
__gt__(self,o)	>
__str__(self)	override str()
__repr__(self)	repr()
__len__(self)	len()
__getitem__(-self,n)	subscritable and slice-able
__setitem__(self,-key,value)	supporting item assignment
__call__(self)	-> callable

inheritance

```
overriding __init__:
super(child class,self).__init__(*para)
```

datetime

from datetime import datetime

dt = datetime(201-5,4,19,12,20)	2015-04-19 12:20:00
datetime.now()	current date and time
datetime.strptime('2015-6-1 18:19:59','%Y-%m-%d %H:%M:%S')	str -> datetime
dt.strftime('%a,%b %d %H %M')	datetime -> str
from datetime import timedelta	datetime addition and subtraction

now + timedelta(hours = 10)

now + timedelta(days=1)

JSON

import json

js=json.dump-s(py)	convet from python obj to json
py = json.l-oads(js)	convert from json to python obj