# Python 學習筆記

## input(輸入) and print(輸出)

* 1. Answer=raw\_input(“Type left or right and hit ‘Enter’ .”).lower()
  2. Print “price: %s” % price

## Functions

### 方法的定義方式：

def 方法名稱(參數):

方法內容

return 值

### 使用函式庫：import

* + 1. Import math

print math.sqrt(25)

* + 1. from math import sqrt

print sqrt(25)

* + 1. from math import \*

print sqrt(25)

### 查詢函式庫有哪些方法：

* + 1. import math

everything=dir(math)

print everything

### 最大值、最小值、絕對值、及多參數

def biggest\_number(\*args):

print max(args)

return max(args)

def smallest\_number(\*args):

print min(args)

return min(args)

def distance\_from\_zero(arg):

print abs(arg)

return abs(arg)

biggest\_number(-10, -5, 5, 10)

smallest\_number(-10, -5, 5, 10)

distance\_from\_zero(-10)

### 檢查變數類型

Print type(55) 🡪<type ‘int’>

Print type(55.0) 🡪<type ‘float’>

Print type(‘adc’) 🡪 <type ‘str’>

### 條件判斷

def shut\_down(s):

if s=='yes':

return 'Shutting down'

elif s=='no':

return 'Shutdown aborted'

else:

return 'Sorry'

## LISTS 與dICTIONARIES

### LIST宣告方式：

list\_name=[item\_1,item\_2]

empty\_list=[]

### LIST長度：

Len(list\_name)

### 取代LIST值：

Zoo\_animals=[“pangolin”,”cassowary”,”sloth”,”triger”]

Zoo\_animals[2]=”hyena”

### 在LIST後方附加新值：

Zoo\_animals.append(“fish”)

### 切割LIST：

Suitcase=[“sunglasses”,”hat”,”passport”]

First=Suitcase[0:2] #取出索引0,1的值並重組成新的LIST

### 切割字串：

Animals=”catdogfrog”

Dog=[3:6]

### 取得LIST值的索引：

animals = ["aardvark", "badger", "duck", "emu", "fennec fox"]

duck\_index =animals.index("duck")

### 在LIST中插入新元素：

animals.insert(duck\_index,"cobra")

### 遍歷LIST：

my\_list = [1,9,3,8,5,7]

for number in my\_list:

print 2\*number

### list排序：

start\_list = [5, 3, 1, 2, 4]

square\_list = []

for number in start\_list:

square\_list.append(number \*\* 2)

square\_list.sort()

print square\_list

### Dictionary是一種KEY-VALUE的結構：

residents = {'Puffin' : 104, 'Sloth' : 105, 'Burmese Python' : 106}

print residents['Puffin'] # Prints 104

### 在dictionary中加入新的實體：

menu = {} # Empty dictionary

menu['Chicken Alfredo'] = 14.50 # Adding new key-value pair

print menu['Chicken Alfredo']

### 從DICTIONARY中刪除實體：

zoo\_animals = { 'Unicorn' : 'Cotton Candy House',

'Sloth' : 'Rainforest Exhibit',

'Bengal Tiger' : 'Jungle House',

'Atlantic Puffin' : 'Arctic Exhibit',

'Rockhopper Penguin' : 'Arctic Exhibit'}

del zoo\_animals['Unicorn']

### 從DICTIONARY中刪除實體：REMOVE

backpack = ['xylophone', 'dagger', 'tent', 'bread loaf']

backpack.remove("dagger")

### 從DICTIONARY中改變KEY關聯的值：

zoo\_animals['Rockhopper Penguin']="babala"

### 整合運用：

inventory = {

'gold' : 500,

'pouch' : ['flint', 'twine', 'gemstone'], # Assigned a new list to 'pouch' key

'backpack' : ['xylophone','dagger', 'bedroll','bread loaf']

}

inventory['burlap bag'] = ['apple', 'small ruby', 'three-toed sloth']

inventory['pouch'].sort()

inventory['pocket']=['seashell','strange berry','lint']

inventory['backpack'].sort()

inventory['backpack'].remove('dagger')

inventory['gold']=500+50

* 1. 整合運用2：

lloyd = {

"name": "Lloyd",

"homework": [90.0,97.0,75.0,92.0],

"quizzes": [88.0,40.0,94.0],

"tests": [75.0,90.0]

}

alice = {

"name": "Alice",

"homework": [100.0, 92.0, 98.0, 100.0],

"quizzes": [82.0, 83.0, 91.0],

"tests": [89.0, 97.0]

}

tyler = {

"name": "Tyler",

"homework": [0.0, 87.0, 75.0, 22.0],

"quizzes": [0.0, 75.0, 78.0],

"tests": [100.0, 100.0]

}

students=[lloyd,alice,tyler]

for student in students:

print student["name"]

print student["homework"]

print student["quizzes"]

print student["tests"]

## loop(迴圈)

### for name in names:

names = ["Adam","Alex","Mariah","Martine","Columbus"]

for name in names:

print name

### for key in dictionary:

webster = {

"Aardvark" : "A star of a popular children's cartoon show.",

"Baa" : "The sound a goat makes.",

"Carpet": "Goes on the floor.",

"Dab": "A small amount."

}

# Add your code below!

for key in webster:

print key+':'+webster[key]

out:

Aardvark:A star of a popular children's cartoon show.

Carpet:Goes on the floor.

Dab:A small amount.

Baa:The sound a goat makes.

### string looping :

for letter in "Codecademy":

print letter

# Empty lines to make the output pretty

print

print

word = "Programming is fun!"

for letter in word:

# Only print out the letter i

if letter == "i":

print letter

out:

C

o

d

e

c

a

d

e

m

y

i

i

None

### for in range

n = [3, 5, 7]

def double\_list(x):

for i in range(0, len(x)):

x[i] = x[i] \* 2

return x

print double\_list(n)

## list 補充

### removing elements from lists(從LIST移除元素):

#### n.pop(index) 依索引移除

n = [1, 3, 5]

n.pop(1)

*# Returns 3 (the item at index 1)*

print n

*# prints [1, 5]*

#### n.remove(item) 依物件移除

n.remove(1)

*# Removes 1 from the list,*

*# NOT the item at index 1*

print n

*# prints [3, 5]*

#### del(n[index]) 類似.pop的效果，但沒有回傳值

del(n[1])

*# Doesn't return anything*

print n

*# prints [1, 5]*

### list add(陣列相加)

m = [1, 2, 3]

n = [4, 5, 6]

# Add your code here!

def join\_lists(m,n):

return m+n

print join\_lists(m, n)

# You want this to print [1, 2, 3, 4, 5, 6]

### 有趣的5\*5LIST宣告

board=[]

for i in range(0,5):

board.append(["O"]\*5)

print board

## 字串處理 string functiion

### join (將list內的元素以字串內容做連結)

board=[]

for i in range(0,5):

board.append(["O"]\*5)

def print\_board(board):

for row in board:

print " ".join(row)

print\_board(board)

## 隨機數(rand function)

### randint(a,b)

from random import randint

coin = randint(0, 1)

### not in range(a,b)

if guess\_row not in range(0,len(board[0]) - 1) or \

guess\_col not in range(range(0,len(board[0]) - 1)):

print "Oops, that's not even in the ocean."

## 使用逗點連接字串和變數

for turn in range(4):

print "Turn",turn+1

## loop 特殊用法

### enumerate(iterable, start=0)

d **=** ['Spring', 'Summer', 'Fall', 'Winter']

**for** i, j **in** enumerate(d, 1):

print(i, j)

### zip(iterables) 配對

list\_a = [3, 9, 17, 15, 19]

list\_b = [2, 4, 8, 10, 30, 40, 50, 60, 70, 80, 90]

for a, b in zip(list\_a, list\_b):

# Add your code here!

if a>b:

print a

elif b>a :

print b

### for/else (這裡的else代表指定for迴圈正常結束後執行的事件)

fruits = ['banana', 'apple', 'orange', 'tomato', 'pear', 'grape']

print 'You have...'

for f in fruits:

if f == 'tomato':

print 'A tomato is not a fruit!' # (It actually is.)

break

print 'A', f

else:

print 'A fine selection of fruits!'