**enumerate list**

charList = ['1', '2', '3', '4', 'a', 'b', '.', 'z']

for i, s in enumerate(strList):

print('strList['+str(i)+']=' + s)

**str list to str**

string = ''.join(charList)

#string = “1234ab.z”

string2 = ':'.join(charList)

#string2 = “1:2:3:4:a:b:.:z”

**str to str list**

sentence = "Hi, my name is Stephen."

wordList = sentence.split()

**zip two lists into a dictionary**

list\_a = [1, 2, 3, 0]

list\_b = ['a', 'b, 'a', 'z']

mydict = dict(zip(list\_a, list\_b))

print(mydict\_c) → {1: 'a', 2: 'b', 3: 'a', 0: 'z'}

**initialize list with values**

lst = list(range(2,5)) → [2, 3, 4, 5]

lst = [1]\*3 → [1,1,1]

**create 2D array**

rows = 3

cols = 4

rslt = [[0 for i in range(cols)] for j in range(rows)]

**sort list**

lst = [[1,'z', 'b'], [3,'a','c'],[5,'a','a'], [2, 'a','a']]

lst.sort(key = lambda x:x[0])

lst.sort(key = lambda x:x[1:])

**search dictionary by value**

mydict = {1: 'a', 2: 'b', 3: 'a', 0: 'z'}

value = 'a'

keys = [ key for key,val in mydict.items() if val==value ]

#keys = [1,3]

**sort dictionary by key**

keys=sorted(mydict) # return sorted key list

print(mydict) → {1: 'a', 2: 'b', 3: 'a', 0: 'z'}

print(keys) → [0,1,2,3]

**sort dictionary by value**

for key, value in sorted(mydict.items(), key=lambda kv: kv[1], reverse=False):

print("%s: %s" % (key, value))

kv = sorted(mydict.items(), key=lambda kv: kv[1], reverse=False)

keys, values = zip(\*kv) #keys values are tuples

print(**list**(keys)) → [1, 3, 2, 0]

print(**list**(values)) → ['a', 'a', 'b', 'z']

**get dictionary by key**

print(mydict.get(2)) → b

print(mydict) → {1: 'a', 2: 'b', 3: 'a', 0: 'z'}

#w/o default, if key does’t exist, it returns None

print(mydict.get(100)) → None

print(mydict.get(100, 'default')) → default

**pop dictionary by key**

#w/o default, if key does’t exist, it is KeyError

print(mydict.pop(2)) → b

print(mydict) → {1: 'a', 3: 'a', 0: 'z'}

print(mydict.pop(2, 'default')) → default

**update/add dictionary items**

d2 = {0:'updated value', 4:'new value', 5:'new value', 1:'updated value'}

mydict.update(d2)

print(mydict) → {1: 'updated value', 2: 'b', 3: 'a', 0: 'updated value', 4: 'new value', 5: 'new value'}

**delete dictionary item by key**

del mydict[4] #if key does’t exist, it is KeyError

print(mydict) → {1: 'updated value', 2: 'b', 3: 'a', 0: 'updated value', 5: 'new value'}

**delete dictionary item by value**

**method 1:**

for k, v in dict(mydict).items():

if v == 'updated value':

del mydict[k]

print(mydict) → {2: 'b', 3: 'a', 5: 'new value'}

**method 2:**

newdict = {k:v for k, v in mydict.items() if v!='updated value'}

print(newdict) → {2: 'b', 3: 'a', 5: 'new value'}

**clear dictionary**

newdict.clear()

print(newdict) → {}

**check if dictionary is empty**

if not newdict:

print("Empty")

else:

print("Not empty") → Empty

**copy**

import copy

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

b = a

c = a[:] #shallow copy

d = copy.deepcopy(a) # deep copy

s = copy.copy(a) #shallow copy

a[0][0] = 9

a[2] = 8

print(b) → [[9, 2], [3, 4], 8 ]

print(c) → [[9, 2], [3, 4], 5 ]# shallow copy

print(d) → [[1,2], [3, 4], 5 ]# deep copy

print(s) → [[9, 2], [3, 4], 5 ]# shallow copy

**Create 2D array**

rows = 3

cols = 4

rslt = [[0 for i in range(cols)] for j in range(rows)]

**max and min int value**

float('inf') # positive infinite value

float('-inf') # negative infinite value

import sys

maxv = (sys.maxsize) #9223372036854775807

minv = -sys.maxsize -1 #-9223372036854775808

print(int('11', 2)) → 3

print(int('0b11', 2)) → 3

print(int('011', 2)) → 3

print(int('11', 8)) → 9

print(int('**0**11', 8)) → 9

print(int('10', 16)) → 17

print(int('0x11', 16)) → 17

print(int('011', 16)) → 17

print(int('0b11', 16)) → 2833

print(chr(65)) → ‘A’ #<class ‘str’>

print(ord('A')) → 65