https://docs.python.org/3/tutorial/datastructures.html

5.6. Looping Techniques

When looping through dictionaries, the key and corresponding value can be retrieved at the same time using the items() method.

>>>

**>>>** knights = {'gallahad': 'the pure', 'robin': 'the brave'}

**>>> for** k, v **in** knights.items():

**...**  print(k, v)

**...**

gallahad the pure

robin the brave

When looping through a sequence, the position index and corresponding value can be retrieved at the same time using the [enumerate()](https://docs.python.org/3/library/functions.html#enumerate) function.

>>>

**>>> for** i, v **in** enumerate(['tic', 'tac', 'toe']):

**...**  print(i, v)

**...**

0 tic

1 tac

2 toe

To loop over two or more sequences at the same time, the entries can be paired with the [zip()](https://docs.python.org/3/library/functions.html#zip) function.

>>>

**>>>** questions = ['name', 'quest', 'favorite color']

**>>>** answers = ['lancelot', 'the holy grail', 'blue']

**>>> for** q, a **in** zip(questions, answers):

**...**  print('What is your **{0}**? It is **{1}**.'.format(q, a))

**...**

What is your name? It is lancelot.

What is your quest? It is the holy grail.

What is your favorite color? It is blue.

To loop over a sequence in reverse, first specify the sequence in a forward direction and then call the [reversed()](https://docs.python.org/3/library/functions.html#reversed) function.

>>>

**>>> for** i **in** reversed(range(1, 10, 2)):

**...**  print(i)

**...**

9

7

5

3

1

To loop over a sequence in sorted order, use the [sorted()](https://docs.python.org/3/library/functions.html#sorted) function which returns a new sorted list while leaving the source unaltered.

>>>

**>>>** basket = ['apple', 'orange', 'apple', 'pear', 'orange', 'banana']

**>>> for** i **in** sorted(basket):

**...**  print(i)

**...**

apple

apple

banana

orange

orange

pear

Using [set()](https://docs.python.org/3/library/stdtypes.html#set) on a sequence eliminates duplicate elements. The use of [sorted()](https://docs.python.org/3/library/functions.html#sorted) in combination with [set()](https://docs.python.org/3/library/stdtypes.html#set) over a sequence is an idiomatic way to loop over unique elements of the sequence in sorted order.

>>>

**>>>** basket = ['apple', 'orange', 'apple', 'pear', 'orange', 'banana']

**>>> for** f **in** sorted(set(basket)):

**...**  print(f)

**...**

apple

banana

orange

pear

It is sometimes tempting to change a list while you are looping over it; however, it is often simpler and safer to create a new list instead.

>>>

**>>> import** **math**

**>>>** raw\_data = [56.2, float('NaN'), 51.7, 55.3, 52.5, float('NaN'), 47.8]

**>>>** filtered\_data = []

**>>> for** value **in** raw\_data:

**...**  **if** **not** math.isnan(value):

**...**  filtered\_data.append(value)

**...**

**>>>** filtered\_data

[56.2, 51.7, 55.3, 52.5, 47.8]