1. List manipulation

In [45]:
```
import random


# a) Create a list with 5 fruit names
fruit_names = ['banana', 'orange', 'apple', 'pear', 'strawberry']
print('Fruit list: ' + str(fruit_names))

# b) Extend the fruit_names list with 2 vegatables

veggies_names = ['carrot', 'zucchini']
fruit_and_veggies_names = []
fruit_and_veggies_names = (veggies_names + fruit_names)
print('\nExtended fruit and veggies list: ' + str(fruit_and_veggies_names))

# c) Shuffle the list

random.shuffle(fruit_and_veggies_names)
print('\nShuffled list: ' + str(fruit_and_veggies_names))

# d) Find the position of first vegetable

x = fruit_and_veggies_names.index(veggies_names[0])
print('\nPosition of ' + str(veggies_names[0]) + ' is ' + str(x+1) + ' on the shuf


# e) Remove one fruit
# f) Print the result
fruit_and_veggies_names.remove('banana')
print('\nUpdated fruit and veggies list: ' + str(fruit_and_veggies_names))


# g) Sort the list in alphabetical order

sorted_list = sorted(fruit_and_veggies_names)
print('\nSorted list: ' + str(sorted_list))


# h) Print each element of a list using a loop
print('\nElements printed using a loop: ')
for i in sorted_list:
    print (i)

# i) Modify above code to be ablet to repeat all above steps
#    to get the same results each time

#Is it possible to get the same result each time if we shuffle the list randomly?
#In current implementation I am able to have the only same results final results
```

```
Fruit list: ['banana', 'orange', 'apple', 'pear', 'strawberry']

Extended fruit and veggies list: ['carrot', 'zucchini', 'banana', 'orange',
'apple', 'pear', 'strawberry']

Shuffled list: ['banana', 'strawberry', 'carrot', 'zucchini', 'orange', 'pea
r', 'apple']
```



```
Position of carrot is 3 on the shuffled list

Updated fruit and veggies list: ['strawberry', 'carrot', 'zucchini', 'orang
e', 'pear', 'apple']

Sorted list: ['apple', 'carrot', 'orange', 'pear', 'strawberry', 'zucchini']

Elements printed using a loop:
apple
carrot
orange
pear
strawberry
zucchini
```

2. Tuples

In [58]:
```
first_list = ["a" + str(number) for number in range(1, 10)]
second_list = ["b" + str(number) for number in range(1, 10)]
print(first_list)
print(second_list)

# Pair up above lists
paired_list =[[x, y] for x, y in zip(first_list, second_list)]
print(paired_list)


# Using a loop unpack the tuple into variables: first_el, secodn_el
# Print the pair position and variables using f-string.
# Example:
# "Index of a3 and b3 is equal 2"

for index, tuple in enumerate(paired_list):
    first_el = tuple[0]
    secodn_el = tuple [1]
    print(f"Index of {first_el} and {secodn_el} is equal {index}")
```

```
['a1', 'a2', 'a3', 'a4', 'a5', 'a6', 'a7', 'a8', 'a9']
['b1', 'b2', 'b3', 'b4', 'b5', 'b6', 'b7', 'b8', 'b9']
[['a1', 'b1'], ['a2', 'b2'], ['a3', 'b3'], ['a4', 'b4'], ['a5', 'b5'], ['a6',
'b6'], ['a7', 'b7'], ['a8', 'b8'], ['a9', 'b9']]
Index of a1 and b1 is equal 0
Index of a2 and b2 is equal 1
Index of a3 and b3 is equal 2
Index of a4 and b4 is equal 3
Index of a5 and b5 is equal 4
Index of a6 and b6 is equal 5
Index of a7 and b7 is equal 6
Index of a8 and b8 is equal 7
Index of a9 and b9 is equal 8
```

3. Sets (unordered & unique data)

In [67]:
```
fake_names_1 = ['Sherry', 'Mary', 'Matthew', 'Danielle', 'Jeffrey', 'Lauren',
                'Keith', 'Carlos', 'Monique', 'Laura', 'Jared', 'Valerie', 'Juan',
                'Christopher', 'Erica', 'Dawn', 'Joshua', 'Brandon', 'Stephanie']

fake_names_2 = ['Andre', 'Anthony', 'Lauren', 'Douglas', 'Jonathan', 'Richard',
                'Alyssa', 'Vincent', 'Travis', 'Clifford', 'Jerry', 'Justin',
                'Matthew', 'Jared', 'Erica']

# Find the overlapping names in above lists

duplicated_names = list(set(fake_names_1) & set(fake_names_2))
print(duplicated_names)

# Print number of "duplicated" names
print(len(duplicated_names))

# Find and print the union of above lists

union_names = fake_names_1 + fake_names_2
union_names = list(dict.fromkeys(union_names))
print(union_names)


# Find and print the difference between lists
difference_names = set(fake_names_1) - set(fake_names_2)
print(difference_names)
```

```
['Matthew', 'Jared', 'Erica', 'Lauren']
4
['Sherry', 'Mary', 'Matthew', 'Danielle', 'Jeffrey', 'Lauren', 'Keith', 'Carlo
s', 'Monique', 'Laura', 'Jared', 'Valerie', 'Juan', 'Christopher', 'Erica', 'Da
wn', 'Joshua', 'Brandon', 'Stephanie', 'Andre', 'Anthony', 'Douglas', 'Jonatha
n', 'Richard', 'Alyssa', 'Vincent', 'Travis', 'Clifford', 'Jerry', 'Justin']
{'Valerie', 'Jeffrey', 'Danielle', 'Christopher', 'Dawn', 'Keith', 'Monique',
'Stephanie', 'Joshua', 'Sherry', 'Carlos', 'Laura', 'Brandon', 'Juan', 'Mary'}
```

In [ ]:
```
```