Loops with Python Lists

In [1]:

```python
fruits = ['apple','banana','mango'] # list
for i in fruits:                    # for every element in the list
    print(i)                        # print the element
```

```
apple
banana
mango
```

Note

In the list of fruits there are three items. Each are individually assingned to the variable 'i' in for loop. Loop runs again and again till the list are completely taken.

Syntax

for items in list_of_items:

```
    do something to each item
```

Task

To write a code that calculates the average student height from a list of heights

In [4]:

```python
# dont change the code below
student_height = input("enter the list of students heights").split()
for n in range(0,len(student_height)):
    student_height[n] = int(student_height[n])
print("list of student height ==>", student_height)
# dont change the code above
# your code
tot_height = 0                                    # intializing a variable as 0
for i in student_height:                          # adding the given heights by iterating
    tot_height += i
print(f"the total of height == {tot_height}")
average_height = tot_height / len(student_height) # taking average
print(f"the average height of the students are ==> {average_height}")
```

```
enter the list of students heights115 120 130
list of student height ==> [115, 120, 130]
the total of height == 365
the average height of the students are ==> 121.66666666666667
```

Task

To write a program that calculates the heighest score from a list of scores

In [7]:

```python
# dont change the code below
student_score = input("input a list of scores: ").split()
for n in range(0,len(student_score)):
    student_score[n] = int(student_score[n])
print("the list of student scores ==>", student_score)
# dont change the code above
# your code

x = 0
for i in student_score:
    if i > x:
        x = i
    else:
        pass

print(f"the heighest score of the student in the given list is ==> {x}")
```

```
input a list of scores: 49 45 50 75 88 90 35 60 55
the list of student scores ==> [49, 45, 50, 75, 88, 90, 35, 60, 55]
the heighest score of the student in the given list is ==> 90
```

Summation of numbers ranges from 1 to 100

In [11]:

```python
x = 0
for i in range(0,101):
    x =  x + i
print(f"the summation of numbers ranges from 1 to 100 ==> {x}")
```

```
the summation of numbers ranges from 1 to 100 ==> 5050
```

Task

To write a program that calculate tehe sum of all the even numbers from 1 to 100 including 1 and 100

In [15]:

```python
# generating numbers 1 to 100
numbers = []
for i in range(1,101):
    numbers.append(i)
# adding even numbers in the list
sum_even = 0
for even in numbers:
    if even % 2 == 0:
        sum_even += even
    else:
        pass
print(f"the summation of all even numbers ranges from 1 to 100 ==> {sum_even}")
```

```
the summation of all even numbers ranges from 1 to 100 ==> 2550
```

Task

To write a program that automatically prints the solution to the FizzBuzz game

1. print each number from 1 - 100
2. when the number is divisible by 3 instead it should print fizz
3. when the number is divisible by 5 instead it should print buzz
4. when the number is divisible by both 3 and 5 it should print fizzbuzz

In [17]:

```python
numbers = []
for i in range(1,101):
    numbers.append(i)

for i in numbers:
    if (i % 3 == 0) and (i % 5 == 0):
        print('FizzBuzz')
    elif i % 3 == 0:
        print('Fizz')
    elif i % 5 == 0:
        print('Buzz')
    else:
        print(i)
```

```
1
2
Fizz
4
Buzz
Fizz
7
8
Fizz
Buzz
11
Fizz
13
14
FizzBuzz
16
17
Fizz
19
Buzz
Fizz
22
23
Fizz
Buzz
26
Fizz
28
29
FizzBuzz
31
32
Fizz
34
Buzz
Fizz
37
38
Fizz
Buzz
41
Fizz
43
44
FizzBuzz
46
47
Fizz
49
Buzz
Fizz
52
53
Fizz
Buzz
56
Fizz
58
59
FizzBuzz
61
```

```
62
Fizz
64
Buzz
Fizz
67
68
Fizz
Buzz
71
Fizz
73
74
FizzBuzz
76
77
Fizz
79
Buzz
Fizz
82
83
Fizz
Buzz
86
Fizz
88
89
FizzBuzz
91
92
Fizz
94
Buzz
Fizz
97
98
Fizz
Buzz
```

Task

To generate a password

Sample Output

How many letters would you like in your password ? ==> 4

How many symbols would you like in your password ? ==> 2

How many numbers would you like in your password ? ==> 2

Here is your password ==> OgUf0((3

In [24]:

```python
# import random package
import random

# Creating a list containing symbols, alphabets, numbers
letter = 'a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u,v,w,x,y,z,A,B,C,D,E,F,G,H,I,J,K,L,M,N
list_letters = letter.split(",")
number = [0,1,2,3,4,5,6,7,8,9]
symbols = ["!","@","#","$","%","^","&","*","(",")","-","+"]

# user input
len_letters = input("How many letters would you like in your password ? ==> ")
len_numbers = input("How many numbers would you like in your password ? ==> ")
len_symbols = input("How many symbols would you like in your password ? ==> ")

# printing the output
len_password = int(len_letters) + int(len_numbers) + int(len_symbols)

letters_password = random.sample(list_letters, int(len_letters))
numbers_password = random.sample(number, int(len_numbers))
symbols_password = random.sample(symbols, int(len_symbols))

password = letters_password + numbers_password + symbols_password
print(password)

password = random.sample(password, len_password)

password_str = ''
for i in password:
    password_str += str(i)
print(f'Here is your password ==> {password_str}')
```

```
How many letters would you like in your password ? ==> 4
How many numbers would you like in your password ? ==> 2
How many symbols would you like in your password ? ==> 2
['H', 'a', 'V', 'o', 2, 7, '&', '#']
Here is your password ==> oH#V7a2&
```