Python Basics

If:else:, loops, function and file operation

Flow control

There are 3 important types of flow-control

(1) If

(2) for

(3) While

Basic format of flow control

Things need to remember:

(1) if-else

```
if (condition A):
    statement A
else:
    statement B
```

(1) For

```
for i in A:
    statement A
```

(1) While

```
while(condition A):
    statement B
```

Three types of if: else:

```
if <statement>:
    <do something>

if <statement>:
    <do something>
else:
    <do something else>

if <statement>:
    <do something>
elif <another statement>:
    <do something else>
else:
    <do something else
```

Example of if: else:

```
 if age > 40:
   print("The person is not young")
 else:
   print("The person is young")


if age > 60:
  print("The person is old")
elif age < 40:
  print("The person is young")
else:
  print("The person is middle aged")
```

Examples of for and while loops

```
for loopCounter in range(0, 5):
  print(f"loopCounter: {loopCounter},name: {name}, age: {age}, height: {height}")
```

```
loopCounter = 0
while loopCounter < 5:
  print(f"loopCounter: {loopCounter}, name: {name}, age: {age}, height: {height}")
  loopCounter += 1
```

Functions

Python function is very important, it can help you to organize your code well and improve the efficiency.

It can improve the re-usability of your code.

You don’t need to code the same function twice if it already implemented.

Function example

```
def average(startNum, endNum):

  result_sum = 0

  for i in range(startNum, endNum+1):
    result_sum += i
  return result_sum / (endNum - startNum + 1)

# here we call the function
print(f'Average from 1 to 50: {average(1, 50)}')
```

File operation

Handling files is also important.

Unlike in java/c++, handling files in python is easy.

(1) read in files

(2) write files

Basic Syntax-Files

Things to remember:

(1) Input

```
f=open(“filename”,’r’)
lf=f.readlines()
f.close()
```

(2) Output

```
f=open(“filename”,’w’)
f.write(String)
f.close()
```

Examples of file operation

```
# Write a file

with open('new_file.txt', 'w') as f_write:
  f_write.write('Writing from python - 1')
```

```
f_write = open('new_file.txt', 'w')
print('Writing from python - 2', file=f_write)
f_write.close()
```

```
f_in = open('new_file.txt', 'r')
data = f_in.readlines()
f_in.close()

print(data)
```

```
# let's try add another line
f_write = open('new_file.txt', 'a')

print('Add from python - 3', file=f_write)

f_write.close()
```

```
# read file again

f_in = open('new_file.txt', 'r')
data = f_in.readlines()
f_in.close()

print(data)
```

Congrats!, you are done with Python Basics