Automation Test Program
Admission Test

Online Learning Resources:

1. Introduction of Python
2. YouTube - Python List & Tuple
3. YouTube - Python Set & Dictionary
4. GitHub Document - Quick Start
5. Python Practice

Notes:

You should create an account on Github Page and create a new repository named "admission-test" for all the files you like to submit. You should share your repository with yingngai@school.appworks.tw

Question 1:

You are required to complete the following two functions.

1. find_max: find the max value of an array of numbers.
2. find_position: find the first position of the target number inside an array of numbers. The position should be counted starting from 0, if you can't find the target, please return -1.

Reminder: you **cannot** use those built-in functions like max() and index() to complete this assignment, please implement it by yourself.

```python
def find_max(numbers):
 # your code here

def find_position(numbers, target):
 # your code here

print(find_max([1, 2, 4, 5]) ); # should print 5
print(find_max([5, 2, 7, 1, 6]) ); # should print 7

print(find_position([5, 2, 7, 1, 6], 5)) # should print 0
print(find_position([5, 2, 7, 1, 6], 7)) # should print 2
print(find_position([5, 2, 7, 7, 7, 1, 6], 7)) # should print 2 (the first one)
print(find_position([5, 2, 7, 1, 6], 8)) # should print -1
```

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Question 2:

Complete the following functions by Python

1. count: return an object which shows the count of each character.
2. group_by_key: return an object which shows the summed up value of each key.

Note:
1. The input format is different for these two functions.
2. In the second function, the input may have the same key but different
   values, the output should have each key only once.

```python
def count(input):
 # your code here

input1 = ['a', 'b', 'c', 'a', 'c', 'a', 'x']
print(count(input1)) # should print {'a': 3, 'b': 1, 'c': 2, 'x': 1}

def group_by_key(input):
 # your code here

input2 = [
 {'key': 'a', 'value': 3},
 {'key': 'b', 'value': 1},
 {'key': 'c', 'value': 2},
 {'key': 'a', 'value': 3},
 {'key': 'c', 'value': 5}
]

print(group_by_key(input2)) # should print {'a': 6, 'b': 1, 'c': 7}
```

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Question 3:

You are required to have self study for the following topic, please submit your study notes. You may be required to present the content when having an interview.

Note: Can be in Chinese or English.

1. What is Git and why is it used?

2. What is the difference between List, Dictionary, Tuple and Set in Python?