Tutorial 2 (Week 3 + 4)

- Able to use list
- Able to use dictionary

Question 1.

I. Write one line of code to create a list containing 1, 2, 3, 4, 1, 2, 3, 4.

II. Write one line of code to change the list to 1, 2, 3, 4, 1, 2, 3, 4, 2000.

II. Write one line of code to change the list to 2, 3, 4, 1, 2, 3, 4, 2000.

IV. Write one line of code to change the list to 2, 3, 4, 1, 2, 3, 4, 0.

V. Write one line of code to change the list to 1, 2, 3, 4, 1, 2, 3, 4, 0.

VI. Write two lines of code using a loop to change the list to 11, 12, 13, 14, 11, 12, 13, 14, 10.

VII. Write two lines of code using a loop to change the list to 10, 10, 10, 10, 10, 10, 10, 10, 10.

VIII. Write two lines of code using a loop to change the list to 10, 11, 12, 13, 14, 15, 16, 17, 18.

IX. Write one line of code to change the list to an empty list.

Question 2. Write a program to generate a list of square numbers. The program asks the user how many square numbers to be generated, and then displays the generated list of squares. The program should work as the following example:

```
How many square numbers to generate? 7
Here is a list of generated squares: [0, 1, 4, 9, 16, 25, 36]
```

Question 3. Write a program to generate a list of Fibonacci numbers. The program asks the user how many numbers to be generated, and then displays the generated list of numbers. The program should work as the following example:

```
How many Fibonacci numbers to generate? 6
Here is a list of generated Fibonacci numbers: [0, 1, 1, 2, 3, 5]
```

Question 4. Write a program to repeatedly ask the user to enter an integer number, until the user enters "QUIT". Then display the list of all the entered numbers. The program should work as the following example:

```
Enter an integer (enter QUIT to quit): 10
Enter an integer (enter QUIT to quit): 5
Enter an integer (enter QUIT to quit): 1
Enter an integer (enter QUIT to quit): 2
Enter an integer (enter QUIT/quit to quit): QUIT
You have entered: 10, 5, 1, 2.
```

Question 5. Given the following code, write a Python script to print out the variable that prints out the states `Queensland` and `Victoria` from the following variable

```
state_abb = {
  "NSW": "New South Wales",
  "ACT": "Australian Capital Territory",
  "NT": "Northern Territory",
  "QLD": "Queensland",
  "SA": "South Australia",
  "TAS": "Tasmania",
  "VIC": "Victoria",
  "WA": "Western Australia"
}
```

Question 6. Given the following code, write a Python script to

- Print out user's first name
- Change user's last name to Harrison
- Add user's email a.harrison@gmail.com
- Delete user's age

```
user_info = {
  "first_name": "Amanda",
  "last_name": "Smith",
  "age": 20
}
```

Question 7. Use a dictionary to write a program that works like the following example.

```
Enter state NSW/ACT/NT/QLD/SA/TAS/VIC/WA: NT

You have entered Northern Territory
```

Question 8. Write a Python script to add a key to a dictionary.

```
Enter a key (string): NT

Enter value: 932

Enter a key (string): AU

Enter value: 9321

We have a dictionary: {'NT': '932', 'AU': '9321'}
```

Question 9. Write a Python script to concatenate following dictionaries to create a new one.

```
Sample Dictionary :
dic1={12:144, 13:169}
dic2={3:33, 4:44}
dic3={5:510,6:632}
Expected Result: {12: 144, 13: 169, 3: 33, 4: 44, 5: 510, 6: 632}
```

Question 10. Write a Python script to concatenate following dictionaries to create a new one.

```
Sample Dictionary :
dic1={12:144, 13:169}
dic2={3:33, 4:44}
dic3={5:510,6:632}
Expected Result: {12: 144, 13: 169, 3: 33, 4: 44, 5: 510, 6: 632}
```

Question 11. Given the following code, access the value with the key 'communications' and print it out.

```
school = {
  "classA": {
    "student": {
      "name":"Merlion Tan",
      "subjects":{             "phython":70,
                  "communications":80      }    }  }}
```

Question 12. Rename the key ‘town’ to ‘district’ in the following dictionary

```
sampleDict = {
  "name": "Kelly",
  "interest": ‘badminton’,
  "age": 32,
  "town": "Ang mo kio" }
```

Question 13. Given the following code, write a Python script to

- Add a key to inventory called 'equipped'.
- Set the value of 'equipped' to be a list consisting of the strings `'ruby', 'red potion',` and `'apple'`.
- `.sort()` the items in the list stored under the 'backpack' key.
- Then `.remove('dagger')` from the list of items stored under the 'backpack' key.
- Add 50 to the number stored under the 'gold' key.

```
inventory = {
  'coins' : 500,
     'pouch' : ['flint', 'twine', 'gemstone'],
     'haversack' : ['wooden spear', 'dagger', 'fish', 'drumstick']}
```

Question 14. Given the following code, write a Python script that retrieves a list of available items on sale. Next compute the total checkout price for everything in the store, and add 7% g.s.t. to it.

```
stock = {
  "sunblock" 25,
  "swimming cap": 2,
  "ear plugs": 4,
  "goggles": 15
}
prices = {
  "sunblock": 16,
  "swimming cap": 10,
  "ear plugs": 1.5,
  "goggles": 9.9
}
```