JLUFE **Fall 2021(Sep-Jan)**

Homework Assignment Report

JILIN UNIVERSITY OF FINANCE AND ECONOMICS

College of Managment Science and Information Engineering

BSc in Data Science and Big Data Technology

(2021)

MODULE: Intelligent Technology

Homework Assignment: 02

Tuples, Sets and Dictionary

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Instructions:

1. I have added tips and required learning resources for each question, which helps you to solve the problems.
2. Finish the assignment on your **OWN**. **Any student find copying/sharing from classmates or internet will get '0' points!!!**
3. After `Accepting this assignment` from ➞ GitHub Clasroom link (https://classroom.github.com/a/Dzu4NqBh), Github will create private repository of the assignment in your GitHub Classroom account.
4. In your repository `Clone` ➞ `Download ZIP` in your computer.
5. Change your ➞ **College**, **Major**, **Name**, **Student number**, **Class number**, **QQ number** and **GitHub ID**
6. Once you finish the Assignment convert your .ipynb file into PDF (https://github.com/milaan9/91_Python_Mini_Projects/tree/main/001_Convert_IPython_to_PDF) (both **.ipynb** and **.pdf** file will be required!)
7. To submit your assignment, go to GitHub Classroom repository and `Add file` ➞ `Upload files` ➞ `Commit changes`
   A. Replace the question (**.ipynb**) file with your solution (**.ipynb**) file.
   B. Also, upload (**.pdf**) converted file of your solution (**.ipynb**) file.

Python Assignment 03

Part A → Tuple Level 1 & 2

> **Note:** Please create new cell for each question

Part A → Level 1

> **Note:** Please create new cell for each question

1. Create a tuple containing names of `fruits` and `vegetables`
2. Join `fruits` and `vegetables` tuples and assign it to `fruits_vegetables`
3. How many `fruits_vegetables` do you have?
4. Modify the `fruits_vegetables` tuple and add the name of your favorite mushroom and beverage and assign it to `food_tuple`

In [ ]:

```
# Solution:
fruits=("apple", "banana", "strawberry")
vegetable=("coriander", "lettuce", "spinach")
print(fruits)
print(vegetable)
fruits vegetable=fruits+vegetable
print(fruits_vegetable)
print(len(fruits_vegetable))
a=("mushroom","cola")
fruits_vegetable=a+fruits_vegetable
print(fruits_vegetable)
food_tuple=fruits_vegetable[0:2]
print(food_tuple)
```

Part A → Level 2

> **Note:** Please create new cell for each question

1. Unpack `fruits_vegetables` and mushroom and beverage from `food_tuple`
2. Change the about `food_tuple` tuple to a `food_list` list
3. Slice out the middle item or items from the `food_tuple` tuple or `food_list` list.
4. Slice out the first three items and the last three items from `food_list` list
5. Delete the `food_tuple` tuple completely
6. Check if an item exists in tuple:
   - Check if `'Finland'` is a asian country
   - Check if `'India'` is a asian country

```
asian_countries = ('India','China','Singapore','Thailand','Indonesia')
```

In [ ]:

```
# Solution:
fruits=("apple","banana","strawberry")
vegetable=("coriander","lettuce","spinach")
a=("mushroom","cola")
fruits_vegetable=fruits+vegetable+a
print(fruits_vegetable)
*food_tuple,a=fruits_vegetable
print(a)
print(food_tuple)
b=food_tuple[3:4]
print(b)
del food_tuple[0:3]
print(food_tuple)
del food_tuple[0:3]
print(food_tuple)
del food_tuple
asian_countries = ('India','China','Singapore','Thailand','Indonesia')
print("Finland"in asian_countries)
print("India"in asian_countries)
```

Part B → Sets Level 1, 2 and 3

> **Note:** Please create new cell for each question

```
mix_fruits = {'Guava', 'Pear', 'Mango', 'Apple', 'Fig', 'Orange', 'Banana'}
A = {19, 22, 24, 20, 25, 26}
B = {19, 22, 20, 25, 26, 24, 28, 27}
num = [22, 19, 24, 25, 26, 24, 25, 24]
```

Part B → Level 1

> **Note:** Please create new cell for each question

1. Find the length of the set `mix_fruits`
2. Add `'Kiwi'` to `mix_fruits`
3. Insert multiple fruits at once to the set `mix_fruits`
4. Remove one of the fruit from the set `mix_fruits`
5. What is the difference between **remove** and **discard**

In [ ]:

```
# Solution:
mix_fruits = {'Guava', 'Pear', 'Mango', 'Apple', 'Fig', 'Orange', 'Banana'}
print(len(mix_fruits))
mix_fruits.add('Kiwi')
print(mix_fruits)
mix_fruits.update({"apple","banana","strawberry"})
print(mix_fruits)
mix_fruits.discard('strawberry')
print(mix_fruits)
mix_fruits.remove('apple')
print(mix_fruits)
```

Part B → Level 2

> **Note:** Please create new cell for each question

Use Imaginary values for Set A and B

1. Join A and B
2. Find A intersection B
3. Is A subset of B
4. Are A and B disjoint sets
5. Join A with B and B with A
6. What is the symmetric difference between A and B
7. Delete the sets completely

In [ ]:

```
# Solution:
A = {1,3,5,7,9}
B = {1,2,3,4,5,6,7,8,9,10}
print(A|B)
print(A&B)
print(A.issubset(B))
print(A.isdisjoint(B))
print(A^B)
A.clear()
B.clear()
print(A)
print(B)
```

Part B → Level 3

> **Note:** Please create new cell for each question

1. Convert the num to a set and compare the length of the list and the set, which one is bigger?

2. Explain the difference between the following data types: **string**, **list**, **tuple** and **set**
3. `I am a researcher cum teacher and I love to inspire and teach people.` . How many unique words have been used in the sentence? Use the `split` methods and set to get the unique words.

In [ ]:

```
# Solution:
num = [1,2,3,4,5,6,7,8]
print(len(num))
num1=list(num)
print(len(num1))
a="I am a researcher cum teacher and I love to inspire and teach people."
b=a.split()
print(b)
print(len(b))
```

Part C → Dictionary Level 1

> **Note:** Please create new cell for each question

1. Create an empty dictionary called `bird`
2. Add `name`, `color`, `breed`, `legs`, `age` to the `bird` dictionary
3. Create a `student` dictionary and add `first_name`, `last_name`, `gender`, `age`, `marital_status`, `skills`, `country`, `city` and `address` as keys for the dictionary
4. Get the length of the `student` dictionary
5. Get the value of `skills` and check the data type, it should be a list
6. Modify the `skills` values by adding one or two skills
7. Get the dictionary keys as a list
8. Get the dictionary values as a list
9. Change the dictionary to a list of tuples using items() (https://github.com/milaan9/02_Python_Datatypes/blob/main/005_Python_Dictionary_Methods/005_P method
10. Delete one of the items in the dictionary
11. Delete one of the dictionaries

In [ ]:

```
# Solution:
```