■Python Assignment – File Operations & Functions
- Machine Learning Diploma – Python Module
- Instructor: Eng. George Samuel
- Week: File Handling & Automation Practice
- Assignment Type: Coding + Logical Thinking

You Name :

1. Add an item to a tuple

Code:

```
my_tuple = (1, 2, 3)
item_to_add = 4

# TODO: convert tuple to list, add the item, then convert back to tuple
# your code here

print(new_tuple)
```

{Hint}: Tuples cannot change. Convert to list → modify → tuple.

2. Sum all the items in a list

Code:

```
numbers = [5, 10, 15, 20]

# TODO: loop through the list and calculate the total
total = 0
# your code here

print(total)

# Hint: Use a for loop and accumulate values into total.
```

3. Multiply all items in a list

Code:

```
numbers = [2, 3, 4]

# TODO: multiply all numbers in the list
result = 1
# your code here

print(result)
# Hint: Start from 1 and multiply one element at a time.
```

4. Get the smallest number from a list

Code:

```
numbers = [10, 3, 25, 1, 7]

# TODO: find smallest value manually (without min())
smallest = numbers[0]
# your code here

print(smallest)
```

```
# Hint: Replace smallest when you find a smaller value.
```

5. Get the largest number from a list

Code:

```
numbers = [10, 3, 25, 1, 7]

# TODO: find largest value manually (without max())
largest = numbers[0]
# your code here

print(largest)
# Hint: Same idea as smallest — just check for bigger values.
```

6. Count number of strings with length ≥ 2

Code:

```
words = ["hi", "a", "hello", "no", "on"]

# TODO: count strings with length >= 2
count = 0
# your code here

print(count)
# Hint: Use len(word) and a condition.
```

7. Clone or copy a list

Code:

```
original = [1, 2, 3, 4]

# TODO: copy the list (not assignment)
# your code here

print(cloned)
# Hint: Remember: cloned = original is NOT a copy.
# Think of slicing or list().
```

8. Remove item(s) from a set

Code:

```
my_set = {1, 2, 3, 4, 5}

# TODO: remove an item using remove() or discard()
# your code here

print(my_set)
# Hint: Use remove() or discard().
```

9. Check if a set is subset of another

Code:

```
set1 = {1, 2}
set2 = {1, 2, 3, 4}

# TODO: check subset manually or using issubset()
# your code here
```

```
# Hint: Use .issubset() or compare elements manually.
```

10. Remove all elements from a set

Code:

```
my_set = {1, 2, 3}

# TODO: clear the set
# your code here

print(my_set)

# Hint: Sets have a method that makes them empty.
```

11. Find max and min values in a set

Code:

```
my_set = {10, 3, 25, 1, 7}

# TODO: find max and min manually
# your code here

print("Max:", maximum)
print("Min:", minimum)
# Hint: Convert to a list or loop through items.
```

12. Find the index of an item in a tuple

Code:

```
my_tuple = (10, 20, 30, 40)

# TODO: find index of a value (e.g. 30)
# your code here

print(index_value)
# Hint: Tuples have a method for this.
```

13. Convert a tuple to a dictionary

Code:

```
my_tuple = (("a", 1), ("b", 2), ("c", 3))

# TODO: convert to dictionary
# your code here

print(my_dict)
# Hint: A dictionary can be built directly from pairs.
```

14. Unzip a list of tuples into individual lists

Code:

```
pairs = [(1, 2), (3, 4), (5, 6)]

# TODO: extract first elements into one list and second elements into another
# your code here

print(list1)
```

```
print(list2)
# Hint: You can loop OR use zip(*pairs).
```

15. Reverse a tuple

Code:

```
my_tuple = (1, 2, 3, 4, 5)

# TODO: reverse the tuple
# your code here

print(reversed_tuple)
# Hint: Use slicing.
```

16. Convert a list of tuples into a dictionary

Code:

```
pairs = [("a", 1), ("b", 2), ("c", 3)]

# TODO: convert list of tuples into dictionary
# your code here

print(my_dict)
# Hint: dict() can convert list-of-pairs formats.
```

17. Replace the last value of each tuple in a list

- Sample list:
- [(10, 20, 40), (40, 50, 60), (70, 80, 90)]
- Expected output:
- [(10, 20, 100), (40, 50, 100), (70, 80, 100)]

Code:

```
data = [(10, 20, 40), (40, 50, 60), (70, 80, 90)]

# TODO: replace last value with 100
new_list = []
# your code here

print(new_list)
# Hint: Convert each tuple to list, edit, convert back.
```

18. Sort a tuple by its float element

Code:

```
items = (("item1", 10.5), ("item2", 5.7), ("item3", 8.9))

# TODO: sort by the float value
# your code here

print(sorted_items)
# Hint: Use sorted() with a key function.
```

challenge part

Find the longest word in a list

Code:

```
words = ["hi", "hello", "fantastic", "world"]

# TODO: find the longest word

print(longest)
# Hint: Track the word with the largest len().
```

Merge two dictionaries

Code:

```
d1 = {"a": 1, "b": 2}
d2 = {"c": 3, "d": 4}

# TODO: merge into one dictionary

print(result)
# Hint: Use unpacking or update().
```

Sum values in a dictionary

Code:

```
data = {"a": 10, "b": 20, "c": 30}

# TODO: sum all dictionary values

print(total)
```

solution

Code:

```
data = {"a": 10, "b": 20, "c": 30}
#for dictionary i have a key and value so you can loop and find what you need (key or values
total = 0
for value in data.values():
    total += value

print(total)
```

New Challenge

Code:

```
# TODO: sum all scores
scores = {
    "student1": {"math": 80, "science": 90},
    "student2": {"math": 75, "science": 85},
    "student3": {"math": 92, "science": 88},
}

total = ___      # TODO: start total at 0

for student_data in scores.___():# TODO: loop over values of the dictionary
    for score in student_data.___(): # TODO: loop over inner dictionary values
        total ___ score              # TODO: update the total

print(___)       # TODO: print the result
```

```
#hint you will need nested for loop one
```