Assignment 3

List and Tuples

Executable Code:

Lists:

```
# Example: Combining Lists
list1 = ["a", "b", "c"]
list2 = [1, 2, 3]
list3 = list1 + list2
print(list3)

# Example: Appending Elements
fruits = ["apple", "banana", "cherry"]
fruits.append("orange")
print(fruits)

# Example: Clearing List
fruits = ["apple", "banana", "cherry"]
fruits.clear()
print(fruits)

# Example: Copying List
fruits = ["apple", "banana", "cherry"]
x = fruits.copy()
print(x)

# Example: Counting Elements
fruits = ["apple", "banana", "cherry", "cherry"]
x = fruits.count("cherry")
print(x)

# Example: Extending List
fruits = ["apple", "banana", "cherry"]
points = (1, 4, 5, 9)
fruits.extend(points)
print(fruits)

# Example: Index of Element
fruits = [4, 55, 64, 32, 16, 32]
x = fruits.index(32)
print(x)

# Example: Inserting Element
```

```
fruits = ['apple', 'banana', 'cherry']
fruits.insert(1, "orange")
print(fruits)

# Example: Popping Element
fruits = ['apple', 'banana', 'cherry']
x = fruits.pop(1)
print(x)

# Example: Removing Element
fruits = ['apple', 'banana', 'cherry']
fruits.remove("banana")
print(fruits)

# Example: Reversing List
fruits = ['apple', 'banana', 'cherry']
fruits.reverse()
print(fruits)

# Example: Sorting List
cars = ['Ford', 'BMW', 'Volvo']
cars.sort()
print(cars)
```

Output:

['a', 'b', 'c', 1, 2, 3]

['apple', 'banana', 'cherry', 'orange']

[]

['apple', 'banana', 'cherry']

2

['apple', 'banana', 'cherry', 1, 4, 5, 9]

3

['apple', 'orange', 'banana', 'cherry']

banana

['apple', 'cherry']

['cherry', 'banana', 'apple']

['BMW', 'Ford', 'Volvo']

Tuples:

```
#Tuple
# Example: Creating a Tuple
subjects = ("Math", "Physics", "Chemistry", "Biology",
"History")
print(subjects)

# Example: Accessing Tuple Items
print(subjects[1])
print(subjects[-3])
print(subjects[2:4])
print(subjects[:3])

# Example: Checking If Item is Present
if "Biology" in subjects:
    print("Yes, 'Biology' is a subject")

# Example: Converting Tuple to List, Modifying, and Converting
Back
subjects = ("Math", "Physics", "Chemistry", "Biology",
"History")
print(subjects)
subjects_list = list(subjects)
subjects_list[1] = "Geography"
subjects = tuple(subjects_list)
print(subjects)

# Example: Adding Items to Tuple (Convert to List, Append,
Convert Back)
subjects = ("Math", "Physics", "Chemistry", "Biology",
"History")
print(subjects)
subjects_list = list(subjects)
subjects_list.append("English")
subjects = tuple(subjects_list)
print(subjects)

# Example: Removing Item from Tuple (Convert to List, Remove,
Convert Back)
```

```python
subjects = ("Math", "Physics", "Chemistry", "Biology",
"History")
print(subjects)
subjects_list = list(subjects)
subjects_list.remove("Physics")
subjects = tuple(subjects_list)
print(subjects)

# Example: Unpacking Tuples
colors = ("Red", "Green", "Blue")
(first, second, third) = colors
print(first)
print(second)
print(third)

# Example: Unpacking with *
colors = ("Red", "Green", "Blue", "Yellow", "Purple")
(first, *rest, last) = colors
print(first)
print(rest)
print(last)

# Example: Looping Through Tuple
subjects = ("Math", "Physics", "Chemistry", "Biology",
"History")
for subject in subjects:
    print(subject)
print("Second way to access")
for i in range(len(subjects)):
    print(subjects[i])

# Example: While Loop with Tuple
subjects = ("Math", "Physics", "Chemistry", "Biology",
"History")
i = 0
while i < len(subjects):
    print(subjects[i])
    i += 1

# Example: Joining Tuples
tuple1 = ("a", "b", "c")
tuple2 = (1, 2, 3)
tuple3 = tuple1 + tuple2
print(tuple3)
print("Other Way")
fruits = ("Apple", "Banana", "Cherry")
combined_tuple = fruits * 2
print(combined_tuple)

# Example: Tuple Methods
numbers = (2, 7, 8, 3, 2, 5, 7, 4, 6, 8, 5)
```

```
count_of_5 = numbers.count(5)
print(count_of_5)
print("Second Method")
index_of_8 = numbers.index(8)
print(index_of_8)
```

Output:

('Math', 'Physics', 'Chemistry', 'Biology', 'History')

Physics

Chemistry

('Chemistry', 'Biology')

('Math', 'Physics', 'Chemistry')

Yes, 'Biology' is a subject

('Math', 'Physics', 'Chemistry', 'Biology', 'History')

('Math', 'Geography', 'Chemistry', 'Biology', 'History')

('Math', 'Physics', 'Chemistry', 'Biology', 'History')

('Math', 'Physics', 'Chemistry', 'Biology', 'History', 'English')

('Math', 'Physics', 'Chemistry', 'Biology', 'History')

('Math', 'Chemistry', 'Biology', 'History')

Red

Green

Blue

Red

['Green', 'Blue', 'Yellow']

Purple

Math

Physics

Chemistry

Biology

History

Second way to access

Math

Physics

Chemistry

Biology

History

Math

Physics

Chemistry

Biology

History

('a', 'b', 'c', 1, 2, 3)

Other Way

('Apple', 'Banana', 'Cherry', 'Apple', 'Banana', 'Cherry')

2

Second Method

2

Process finished with exit code 0