Module14 Assignment5

Topic Name: Accessing Tuples

Accessing tuple elements using positive and negative indexing.

In Python, you can access elements of a tuple using both positive and negative indexing.

* **Positive Indexing**: Starts from 0 for the first element, 1 for the second, and so on.
* **Negative Indexing**: Starts from -1 for the last element, -2 for the second-to-last, and so on.

example :

# Define a tuple

my\_tuple = ('apple', 'banana', 'cherry', 'date', 'elderberry')

# Accessing elements using positive indexing

first\_element = my\_tuple[0] # 'apple'

second\_element = my\_tuple[1] # 'banana'

# Accessing elements using negative indexing

last\_element = my\_tuple[-1] # 'elderberry'

second\_last\_element = my\_tuple[-2] # 'date'

# Print the results

print("First element (positive index 0):", first\_element)

print("Second element (positive index 1):", second\_element)

print("Last element (negative index -1):", last\_element)

print("Second last element (negative index -2):", second\_last\_element)

**Output**:

First element (positive index 0): apple

Second element (positive index 1): banana

Last element (negative index -1): elderberry

Second last element (negative index -2): date

This approach allows you to access tuple elements from both the beginning and the end, providing flexibility depending on your needs.

**Slicing a tuple to access ranges of elements**

In Python, you can access a range of elements from a tuple using slicing. Slicing allows you to create a new tuple that contains a subset of elements from the original tuple. The syntax for slicing is tuple[start:stop:step], where:

* start is the index where the slice begins (inclusive).
* stop is the index where the slice ends (exclusive).
* step determines the stride between elements; it defaults to 1 if not specified.

Example:

# Define a tuple

my\_tuple = ('apple', 'banana', 'cherry', 'date', 'elderberry', 'fig', 'grape')

# Access elements from index 1 to 4 (excluding 4)

slice1 = my\_tuple[1:4] # ('banana', 'cherry', 'date')

# Access elements from the beginning to index 3 (excluding 3)

slice2 = my\_tuple[:3] # ('apple', 'banana', 'cherry')

# Access elements from index 2 to the end

slice3 = my\_tuple[2:] # ('cherry', 'date', 'elderberry', 'fig', 'grape')

# Access every second element from the tuple

slice4 = my\_tuple[::2] # ('apple', 'cherry', 'elderberry', 'grape')

# Access elements from index 1 to 5 with a step of 2

slice5 = my\_tuple[1:6:2] # ('banana', 'date', 'fig')

# Access elements in reverse order

slice6 = my\_tuple[::-1] # ('grape', 'fig', 'elderberry', 'date', 'cherry', 'banana', 'apple')

# Print the results

print("Slice1 (1:4):", slice1)

print("Slice2 (:3):", slice2)

print("Slice3 (2:):", slice3)

print("Slice4 (::2):", slice4)

print("Slice5 (1:6:2):", slice5)

print("Slice6 (:: -1):", slice6)

**Output**:

Slice1 (1:4): ('banana', 'cherry', 'date')

Slice2 (:3): ('apple', 'banana', 'cherry')

Slice3 (2:): ('cherry', 'date', 'elderberry', 'fig', 'grape')

Slice4 (::2): ('apple', 'cherry', 'elderberry', 'grape')

Slice5 (1:6:2): ('banana', 'date', 'fig')

Slice6 (:: -1): ('grape', 'fig', 'elderberry', 'date', 'cherry', 'banana', 'apple')