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CourseName: Advance Python Programming   **Course code:** 22CSH-623

Experiment-2.3

A) Aim: Write a python program to create a tuple and perform different operations on it using different inbuilt functions.

Tools/Software Required: Visual Studio Code

Description:
A tuple is an ordered and unchangeable collection. In Python, tuples are written with round brackets '( )'. Tuples are immutable, which means that once you create a tuple, you cannot change its values. Tuples are used to store multiple items in a single variable.

Steps:
1. Create a tuple.
2. Print the tuple.
3. Print the length of the tuple.
4. Print the maximum value of the tuple.
5. Print the minimum value of the tuple.
6. Print the sum of the tuple.
7. Print the sorted tuple.
8. Print the reversed tuple.

Implementation:

```python
tuple_element = (1,2,3,4,5,6,-1,-2,-3,-4,-5,-6)

print("Tuple: ", tuple_element)
print("Length: ", len(tuple_element))
print("Maximum: ", max(tuple_element))
print("Minimum: ", min(tuple_element))
print("Sum: ", sum(tuple_element))
print("Sorted: ", sorted(tuple_element))
print("Reversed: ", tuple(reversed(tuple_element)))
```

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Output:

```
$ python tuple_1.py
Tuple:  (1, 2, 3, 4, 5, 6, -1, -2, -3, -4, -5, -6)
Length:  12
Maximum:  6
Minimum:  -6
Sum:  0
Sorted:  [-6, -5, -4, -3, -2, -1, 1, 2, 3, 4, 5, 6]
Reversed:  (-6, -5, -4, -3, -2, -1, 6, 5, 4, 3, 2, 1)
```

B) Aim: Write a python program to perform indexing and slicing of a tuple.

Tools/Software Required: VS Code, Python

Description:
Indexing and slicing of a tuple are similar to indexing and slicing a list. The only difference is that a tuple is immutable, which means that once you create a tuple, you cannot change its values. Tuples are used to store multiple items in a single variable.

Steps:
1. Create a tuple.
2. Print the following:
   a. first element of the tuple.
   b. last element of the tuple.
   c. first three elements of the tuple.
   d. last three elements of the tuple.

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Implementation:

```
tuple_element = (1,2,3,4,5,6,-1,-2,-3,-4,-5,-6)

print("Tuple: ", tuple_element)
print("First element: ", tuple_element[0])
print("Last element: ", tuple_element[-1])
print("First three elements: ", tuple_element[0:3])
print("Last three elements: ", tuple_element[-3:])
```

Output:

```
$ python slice_2.py
Tuple:  (1, 2, 3, 4, 5, 6, -1, -2, -3, -4, -5, -6)
First element:  1
Last element:  -6
First three elements:  (1, 2, 3)
Last three elements:  (-4, -5, -6)
```