

**MINIA UNIVERSITY**  
**FACULTY SCIENCE**  
**Department of Computer Science**  
**Data Structures Using Python**

**Exercises #1**  
**Tuple**

- 1.1 Write a Python code to do the following operations on a given tuple t:
- (a) add an item to the end of t.
  - (b) remove an item from t, given its index.
  - (c) remove duplicates from t.
  - (d) find the index of the first occurrence of an item in t.
- 1.2 Write a function, named ***orderedTuple(t, ascending)***, which checks whether a given tuple ***t*** is ordered in ascending order or descending order. If you pass ***true*** to the ascending argument, the function checks for ascending order, otherwise it checks for descending order. Then, write a main program that tests this function.
- 1.3 Given a list of tuples, write a Python program to extract all tuples having K digit elements.

**Examples:**

**Input:** `test_list = [(54, 2), (34, 55), (222, 23), (12, 45), (78, )], K = 2`

**Output:** `All tuples have numbers with 2 digits: [(34, 55), (12, 45), (78,)]`

**Input:** `test_list = [(54, 2), (34, 55), (222, 23), (12, 45), (782, )], K = 3`

**Output:** `All tuples have numbers with 3 digits: [(782,)]`

- 1.4 Given a tuple of lists, using `tuple()`, `sorted()`, and tuple comprehension, write a Python program to sort each list in the given tuple.

**Example:**

**The original tuple is:** `[(7, 5, 4), [8, 2, 4], [0, 7, 5]]`

**The tuple after sorting lists:** `[[4, 5, 7], [2, 4, 8], [0, 5, 7]]`

- 1.5 Given a list of tuples, write a Python function to sort the tuples alphabetically by the first item of each tuple.

**Example:**

**Input:** `[("Amana", 28), ("Zenat", 30), ("Abhishek", 29), ("Nikhil", 21), ("B", "C")]`

**Output:** `[('Amana', 28), ('Abhishek', 29), ('B', 'C'), ('Nikhil', 21), ('Zenat', 30)]`

- 1.6 Write a Python program to flatten tuples list, i.e., convert it to a single String.

**Example:**

**The original list:** `[('1', '4', '6'), ('5', '8'), ('2', '9'), ('1', '10')]`

**Tuple list converted to String is:** `1 4 6 5 8 2 9 1 10`

- 1.7 Write a Python function to get the count of a certain tuple in a given list of tuples.

**Input:** `[('hi', 'bye'), ('Geeks', 'forGeeks'), ('a', 'b'), ('hi', 'bye'), ('a', 'b')], ('a', 'b')`

**Output:** `tuple ('a', 'b') occurs 2 times`