24BIT196 - Shreya Nair

AIM: To implement various operations on tuples in Python, including counting elements, extracting data, sorting, and modifying tuples

HARDWARE & SOFTWARE REQUIREMENTS: Hardware:16GB RAM, Intel Processor(i9), Software: Python (Version 3.x), Google Colab (Cloud-based)

SYSTEM CONFIGURATION: Operating System: Windows 11, IDE: Google Colab

THEORY: A tuple in Python is an immutable, ordered collection of elements. Unlike lists, tuples cannot be modified after creation, but they support indexing, slicing, and iteration.

REFERENCES: Geeks for Geeks, Python Documentation: https://docs.python.org/3/

1) A list contains names of boys and girls as its elements. Boys' names are stored as tuples. Write a program to find out number of boys and girls in the list. (Hint: use isinstance(ele,tuple))

```
name=[("Ram","John"),"Manya",("Smith","Roy"),"Savannah"]
boys=0
girls=0
for x in name:
  if isinstance(x,tuple):
    boys+=1
  else:
    girls+=1
print("Boys:",boys,"Girls:",girls)
```

```
Boys: 2 Girls: 2
```

2) A list contains tuples containing roll no., name and age of student. Write a python program to create three lists separately for roll no., name and age

```
students = [(196, "Smith", 18), (169, "Lily", 19), (176, "Savannah", 20)]
rollno = [x[0] for x in students]
name = [x[1] for x in students]
age = [x[2] for x in students]
print("Roll Numbers:", rollno)
print("Names:", name)
print("Ages:", age)
```

```
Roll Numbers: [196, 169, 176]
Names: ['Smith', 'Lily', 'Savannah']
Ages: [18, 19, 20]
```

3) Suppose a date is represented as a tuple (d, m, y). Create two date tuples and find the number of days between the two dates

```
from datetime import date
d1=(10,5,2025)
```

```
d2=(20,10,2025)
d1_tup=date(d1[2],d1[1],d1[0])
d2_tup=date(d2[2],d2[1],d2[0])
diff=abs((d2_tup - d1_tup))
print(diff)
```

```
163 days, 0:00:00
```

4) Create a list of tuples containing a food item and its price. Sort the tuples in descending order by price.

```
food= [("Idli",350), ("Pizza",250), ("Pasta", 200),
               ("Sandwich",200),("Noodles",150)]
food.sort(key=lambda x: x[1], reverse=True)
print(food)
```

```
[('Idli', 350), ('Pizza', 250), ('Pasta', 200), ('Sandwich', 200), ('Noodles', 150)]
```

5)Remove empty tuple(s) from the list of tuples.

```
tup=[(2,3),(),("Shreya"),(),()]
lst=[]
for x in tup:
  if len(x)!=0:
    lst.append(x)
print(lst)
```

```
[(2, 3), 'Shreya']
```

6) Modify an element of a tuple.

```
tup=(100,250,300,450)
lst=list(tup)
lst[2]=450
tup=tuple(lst)
print(tup)
```

```
(100, 250, 450, 450)
```

7)Delete an element of a tuple.

```
tup=(100,250,300,450)
lst=list(tup)
lst.pop(2)
tup=tuple(lst)
print(tup)
```

```
(100, 250, 450)
```