30/9/25 **PYTHON**

Tuple Data Structure:

- Tuple is a heterogenous datatype.
- It's represented by tuple() or ().
- It's ordered, immutable and allow duplicates.
- We can't perform data manipulation like add, delete, pop etc.
- Del :it deletes the tuple
- To perform any kind of manipulation we need to convert the tuple to list and modify and again convert back to tuple.

  Eg:t1=(10, True,'python')

  ```
  Temp=list(t1)
  Temp
  Temp[1]=False
  t1=tuple(Temp)
  t1
  ```

  o/p:(10,False,'python')

- To sort: Eg:t1=(('a',23) , ('b',37),('c',11),('d',29))

  ```
  t1=tuple(list(sorted(t1,key=lambda x:x[1])))
  t1
  ```

o/p(('c',11),('a',23),('d',29),('b',37))

Set Data Structure:

- It's a heterogenous Data structure.
- It's unordered, mutable and doesn't allow duplicates.
- Represented by set{} or {}.
- Eg: s1={15,'yashu',13.6,True}

  o.p: {13.6,15,True,'yashu'}

- Methods:
- To add: add ()

- To delete: pop() [It deletes the element randomly]
- To remove a particular element: remove()
- Remove() removes if the element is present else it throws an error.
- Discard(): same as remove() but if ele is not present it doesn't throw any kind of error.

Eg: #set operations

```
s1={1,2,3,4,5}

s2={4,5,6,7,8}

# 1.extract unique elements from sets

print(s1.union(s2))

#2.extract common elements from set

print(s1.intersection(s2))

#3.extract unique elements of set1

print(s1.difference(s2))

#4.extract unique elements od set2

print(s2.difference(s1))

#5.extract non repeated values of set1 and set 2

print(s1.symmetric_difference(s2))
```

O/p: {1, 2, 3, 4, 5, 6, 7, 8}

{4, 5}

{1, 2, 3}

{8, 6, 7}

{1, 2, 3, 6, 7, 8}

#To remove duplicates from list in single line of code

```
l2=[1,1,2,3,2,4,5]

l3=list(set(l2))

l3
```

o/p:[1, 2, 3, 4, 5]