

1. Using for loops in set, tuple, list

```
[2]: #-----Lab 3.3 20th February 2026-----
#nous avons faire la dictionnaire et tuple
t=(10,20,30,40.5,"hello")
for i in t:
    print(i)

10
20
30
40.5
hello

[6]: t=(10,20,30,40.5,"hello")
for i in range(len(t)):
    print(i,t[i])

0 10
1 20
2 30
3 40.5
4 hello

[5]: #set
s={10,20,30,40.5,"hello"}
for i in s:
    print(i)

20
40.5
hello
10
30

[ ]: s={10,20,30,40.5,"hello"}
for i in range(len(s)):
    print(i,s[i])
#error because unordered collection

35]: #-----list-----
fruits = ["apple", "banana", "cherry"]

for fruit in fruits:
    print(fruit)

apple
banana
cherry
```

2. Nested list in set, tuple, list and dictionary

```
[]: #nested list
nes=[[1,2],[3,4],[5,6]] #index is like 0,1 then again 0,1 because different index for different list
print(nes) #inner index is 0,1 and 0,1 but outer is 0, 1, 2 for each list so [1,2] have 0 index, [3,4] have 1 index and [5,6] have 2 index
print(nes[0])
print(nes[0][1])
print(nes[1][1])
nes[1][1]=100
print(nes[1][1])
print(nes)

[[1, 2], [3, 4], [5, 6]]
[1, 2]
2
4
100
[[1, 2], [3, 100], [5, 6]]
```

```
#nested tuple
nes=((1,2),(3,4),(5,6))
print(nes)
print(nes[0])
print(nes[0][1])
print(nes[2][0])
nes[2][0]=100
print(nes[2][0])
print(nes) #not possible because tuple is immutable
```

```
#set inside set or nested set is not allowed
#to use nested set use frozenset (BUT ITS NOT ALLOWED)
nes={frozenset({1,2}), frozenset({3,4})}
print(nes)

{frozenset({3, 4}), frozenset({1, 2})}
```

```
#nested dictionary
data = {
    "user": {
        "id": 1,
        "name": "Alex"
    }
}
print(data["user"]["name"])
```

Alex

3. Dictionary commands(with key and value, and using items method as well)

```
#dictionnaire avec key et value using index
d={'name':'anu','mark':60, 'age' :24}
print(d)
for key in d:
    print(key,d[key])

{'name': 'anu', 'mark': 60, 'age': 24}
name anu
mark 60
age 24
```

```
#same using items method
d={'name':'anu','mark':60, 'age' :24}
for keys,value in d.items():
    print(keys, value)

name anu
mark 60
age 24
```

```
|: d={'name':'anu','mark':60, 'age' :24}
|: print(d.keys())
|: print(d.values())
|: print(d.items())
dict_keys(['name', 'mark', 'age'])
dict_values(['anu', 60, 24])
dict_items([('name', 'anu'), ('mark', 60), ('age', 24)])
```

```
d={'name':'anu','mark':60, 'age' :24}
print(d.get('name'))
print(d.get('class'))
```

```
anu
None
```

```
d={'name':'anu'}
age=d.setdefault('age',20)
print(d)
```

```
{'name': 'anu', 'age': 20}
```

```
d={'name':'anu','mark':60, 'age' :24}
d.update({"mark":20, "name": "labubu"})
print(d)
```

```
{'name': 'labubu', 'mark': 20, 'age': 24}
```

```
|: data={'a':1, 'b':2, 'c':3}
|: data.pop('a') #pops or removes a
|: data.popitem() #removes c because last
|: print(data)
{'b': 2}
```

4. List inside tuple, list inside dictionary, list inside set

```

: t=([1,2],[3,4])
print(t)

#list inside set
#s=[[1,2],[3,4]] #not allowed

#list inside dictionary (As key) -- NOT ALLOWED
#d={[1,2]: "hello"}
#List inside dictionary (As value) -- ALLOWED
d = {"numbers": [1,2,3]}
print(d)

([1, 2], [3, 4])
{'numbers': [1, 2, 3]}

```

5. Tuple inside set

```

t1 = (1,2,3)
list = [t1, (4,5)]
print(list)

set=[(1,2,3),(3,4,5)]
print(set)

```

```

#tuple inside dictionary allowed both as key and value
d={(1,2):"A", (3,4):"B"}
print(d)

d={"num":(1,2,3)}
print(d)

```

```

[(1, 2, 3), (4, 5)]
{((3, 4, 5), (1, 2, 3))}
{((1, 2)): 'A', (3, 4): 'B'}
{'num': (1, 2, 3)}

```

6. Set inside a list, a tuple and a dictionary

```

: #set inside a list
list=[{1,2},{3,4}]
print(list)

#set inside tuple
tuple=({1,2},{3,4})
print(tuple)

#set inside dictionary as value
my_dict = {"key": {1, 2, 3}}
print(my_dict)

[{1, 2}, {3, 4}]
({1, 2}, {3, 4})
{'key': {1, 2, 3}}


: #set inside dictionary as key is not allowed (using frozenkey bruteforce)
my_dict = {frozenset({1, 2, 3}): "value"}
print(my_dict)

{frozenset({1, 2, 3}): 'value'}
```

7. Dictionary inside a list, a set, a dictionary and a tuple

```

#dictionary inside a list
print([{"id": 1, "name": "hola"}])

#dictionary inside a tuple
print(({("status": "active", "level": 10},))

#dictionary inside dictionary
print({"user_1": {"role": "admin", "points": 500}})

#dictionary inside a set with frozenset
print({frozenset({"id": 1, "val": "A"}).items()})

[{'id': 1, 'name': 'hola'}]
({('status': 'active', 'level': 10},)
{'user_1': {'role': 'admin', 'points': 500}}
{frozenset({('val', 'A'), ('id', 1)})})
```

*please consider all frozensets as not allowed