Python Collections – From Basic to Advanced

# Introduction to Python Collections

Python has four built-in collection data types: List, Tuple, Set, and Dictionary.  
They differ by order, mutability, and whether they allow duplicates.

# Lists

Lists are ordered, mutable, and allow duplicates.  
Example:  
```python  
fruits = ["apple", "banana", "cherry"]  
fruits.append("mango")  
print(fruits)  
```

# Tuples

Tuples are ordered and immutable.  
Example:  
```python  
coordinates = (10, 20)  
x, y = coordinates  
print(x, y)  
```

# Sets

Sets are unordered, mutable, and do not allow duplicates.  
Example:  
```python  
A = {1, 2, 3}  
B = {3, 4, 5}  
print(A.union(B))  
```

# Dictionaries

Dictionaries store key-value pairs.  
Example:  
```python  
student = {"name": "Gopi", "age": 25}  
student["city"] = "Mumbai"  
print(student)  
```

# Advanced Collections (collections module)

Includes namedtuple, deque, Counter, defaultdict, OrderedDict, ChainMap.  
Example:  
```python  
from collections import Counter  
cnt = Counter(['apple', 'banana', 'apple'])  
print(cnt)  
```