## Data Structures

There are four basic inbuilt data structures in Python namely List, Tuple, Set and Dictionary.

**List:**

- Ordered and Mutable ( It can be changed)
- Allows duplicate values
- Written inside square brackets []

**Example:**

- list = [“apple”,”banana”,”mango”,”cherry”]
- print(list[2]) ----> mango
- print(list[1:3]) -----> [‘banana’,’mango’]
  The search starts at index 1(included) and end at 3(not included)
- list[1]=”Grapes”
  print(list) -------> [“apple”,”Grapes”,”mango”,”cherry”]
- list.insert(2,”cucumber”) --->
  [“apple”,”Grapes”,”cucumber”,”mango”,”cherry”]

---

**Tuple:**

- Ordered and Immutable (Cannot be changed)
- Allows duplicate values
- Written inside square brackets ()

**Example:**

- tuple = (“apple”,”banana”,”mango”,”cherry”)
- print(tuple[2]) ----> mango
- tuple[1]=”Grapes”
  Error - 'tuple' object does not support item assignment
  Because it is immutable
- Similarly you cannot remove items in tuple, but you can delete the tuple entirely --------> del(tuple)

---

**Set:**

- Unordered (Cannot be sorted)
- Immutable but we can add items
- No duplicate values are allowed
- No index
- Written inside curly brackets {}

**Example:**

- set = {“a”,”b”,”c”,”d”}
- print(set[1])
  Error - 'set' object is not subscriptable
  We cannot access items by referring index in a set.
- We cannot change the items but we can add items in set.
- set.add(“e”)
  print(set) -----> {‘a’,’b’,’d’,’c’,’e’}

---

**Dictionary:**

- Unordered and Mutable
- No duplicate values
- Written with curly braces {}
- They have keys and values

**Example:**

- dict={1:"hello",2:"Gud mor",3:"How r u"}
- print(dict[1]) ----> hello
- You can acess the items by reffering to its key name.
- dict[1]=”Hi”
  print(dict) ----> {1:’Hi’,2:’Gud mor’,3:’How r u’}
- dict[4]=”Hey”
  print(dict) ----> {1:’Hi’,2:’Gud mor’,3:’How r u’,4:’Hey’}