**Python Data structure:**

**List:**

* **List is a Collection which is ordered and Changeable.it allows duplicate members.**

**Tuple:**

* **Tuple is a Collection Which is Ordered and unchangeable. Allows duplicate members.**

**Set:**

* **Set is a Collection which is unordered and unindexed. No Duplicate Members.**

**Dictionary:**

* **Dictionary is a Collection which is unordered. Changeable and indexed. No Duplicate members.**

**1) Create list and Find Length**

**thislist = ["apple", "banana", "cherry"]**

**print(len(thislist))**

**list1 = ["apple", "banana", "cherry"]**

**list2 = [1, 5, 7, 9, 3]**

**list3 = [True, False, False]**

**2)Find List type With Type Special Function:**

**mylist = ["apple", "banana", "cherry"]**

**print(type(mylist))**

**3)ADD new Element in List**

**thislist = ["apple", "banana", "cherry"]**

**thislist.append("orange")**

**print(thislist)**

**4)Add Element in Specific Position**

**thislist = ["apple", "banana", "cherry"]**

**thislist.insert(1, "orange")**

**print(thislist)**

**5)Merge List**

**thislist = ["apple", "banana", "cherry"]**

**newlist = ["mango", "pineapple", "papaya"]**

**thislist.extend(newlist)**

**print(thislist)**

**6)Remove Element From list**

**thislist = ["apple", "banana", "cherry"]**

**thislist.remove("banana")**

**print(thislist)**

**7)Remove Element by Position**

**thislist = ["apple", "banana", "cherry"]**

**thislist.pop(1)**

**print(thislist)**

**If you do not specify the index, the pop() method removes the last item.**

**thislist = ["apple", "banana", "cherry"]**

**thislist.pop()**

**print(thislist)**

**The del keyword also removes the specified index:**

**thislist = ["apple", "banana", "cherry"]**

**del thislist[0]**

**print(thislist)**

**8)Clear the List**

**thislist = ["apple", "banana", "cherry"]**

**thislist.clear()**

**print(thislist)**

**10)Check item in list**

**thislist = ["apple", "banana", "cherry"]**

**ans= "apple" in thislist**

**print(ans)**

**11)Merge List:**

**thislist1 = ["apple", "banana", "cherry"]**

**thislist2 = ["apple", "banana", "cherry"]**

**thislist=thislist1+thislist2**

**print(thislist)**

**Tuple:**

* **A tuple in Python is similar to a list. The difference between the two is that we cannot change the elements of a tuple once it is assigned**
* **A tuple is created by placing all the items (elements) inside parentheses ()**
* **A tuple can have any number of items and they may be of different types (integer, float, list, string, etc.).**

**1)tuple Declaration**

**thistuple=("A","b")**

**print(thistuple)**

**2)Creating a tuple having one element**

**mytuple = ("hello")**

**print(mytuple)**

**3)Accessing tuple elements using indexing**

**my\_tuple = ('p','e','r','m','i','t')**

**print (my\_tuple [0]) # 'p'**

**print (my\_tuple [5]) # 't'**

**4)** **Negative indexing for accessing tuple elements**

**my\_tuple = ('p', 'e', 'r', 'm', 'i', 't')**

**print (my\_tuple [-1])**

**5)By Pre-Index**

**my\_tuple = ('p','e','r','m','i','t')**

**print (my\_tuple [:5])**

**6)By Post-index**

**my\_tuple = ('p','e','r','m','i','t')**

**print (my\_tuple [2:])**

**('r', 'm', 'i', 't')**

**7)elements beginning to end**

**my\_tuple = ('p','r','o','g','r','a','m','i','z')**

**print (my\_tuple [:])**

**Output: ('p', 'r', 'o', 'g', 'r', 'a', 'm', 'i', 'z')**

**8)** **Changing tuple values**

**my\_tuple = (4, 2, 3, [6, 5])**

**my\_tuple [3][0] = 9**

**print(my\_tuple)**

**9)Tupel Concate Example:**

**thistuple1=("A","b")**

**thistuple2=("A","b")**

**print(thistuple1+thistuple2)**

**10)In operation**

**print('a' in my\_tuple)**

**SET**

**A set is created by placing all the items (elements) inside curly braces {}**

**# set cannot have duplicates**

**1)Set Creation**

**my\_set = {1, 2, 3, 4, 3, 2}**

**print(my\_set)**

**2)we can make set from a list**

**# Output: {1, 2, 3}**

**my\_set = set([1, 2, 3, 2])**

**print(my\_set)**

**3)Get Set Length**

**thisset = {"apple", "banana", "cherry"}**

**print(len(thisset))**

**4)Get set type**

**myset = {"apple", "banana", "cherry"}**

**print(type(myset))**

**5)Add Element in Set**

**my\_set = {1, 2, 3, 4, 3, 2,6}**

**my\_set.add(11)**

**print(my\_set)**

**6)Remove Element From Set**

**my\_set = {1, 2, 3, 4, 3, 2,6}**

**my\_set.remove(6)**

**print(my\_set)**

**7)Remove lement From Set**

**my\_set = {1, 2, 3, 4, 3, 2,6}**

**my\_set.discard(4)**

**print(my\_set)**

**8)** **pop an element**

**print(my\_set.pop())**

**Dictionary**

* **Python dictionary is an unordered (3.6) after 3.6 it ordered collection of items. Each item of a dictionary has a key/value pair.**
* **Dictionaries are optimized to retrieve values when the key is known.**

**Creating Python Dictionary**

* **Creating a dictionary is as simple as placing items inside curly braces {}**
* **An item has a key and a corresponding value that is expressed as a pair (key: value).**

**1)dictionary with integer keys**

**my\_dict = {1: 'apple', 2: 'ball'}**

**2)Display Value Using Key**

**thisdict = {**

**"brand": "Ford",**

**"model": "1980"}**

**print(thisdict["brand"])**

**3)Duplicate Value Not Allowed**

**hisdict = {**

**"brand": "Ford",**

**"model": "ABC",**

**"year": 1964,**

**"year": 2020**

**}**

**print(thisdict)**

**4)Length**

**print(len(thisdict))**

**5)**

**thisdict = {**

**"brand": "Ford",**

**"model": "ABC",**

**"year": 1964**

**}**

**x = thisdict["model"]**

**OR**

**x = thisdict.get("model")**

**6)Retrieve all keys**

**x = thisdict.keys()**

**print(x)**

**7)ADD New item in Dictionary**

**car = {**

**"brand": "Ford",**

**"model": "ABC",**

**"year": 1964**

**}**

**x = car.keys()**

**print(x) #before the change**

**car["color"] = "white"**

**print(x) #after the change**

**8)Get All Dictionary Values**

**x = thisdict.values()**

**print(x)**

**9)Update Value in Dictionary**

**car = {**

**"brand": "Ford",**

**"model": "ABC",**

**"year": 1964**

**}**

**x = car.values()**

**print(x) #before the change**

**car["year"] = 2020**

**print(x) #after the change**

**10)Get Both Key and Values**

**x = car.items()**

**print(x)**

**11)Check Element Available or not in dictionary**

**thisdict = {**

**"brand": "Ford",**

**"model": "ABC",**

**"year": 1964**

**}**

**if "model" in thisdict:**

**print("Yes, 'model' is one of the keys in the thisdict dictionary")**

**12)Remove Element**

**my\_dict = {'name': 'John', 1:"abc"}**

**print(my\_dict)**

**my\_dict.pop("name")**

**print(my\_dict)**

**13)**

**mydemo={**

**"alldemo":[**

**{**

**"postId": 1,**

**"id": 1,**

**"name": "id labore ex et quam laborum",**

**"email": "Eliseo@gardner.biz",**

**"body": "laudantium enim quasi est quidem magnam voluptate ipsam eos\ntempora quo necessitatibus\ndolor quam autem quasi\nreiciendis et nam sapiente accusantium"**

**},**

**{**

**"postId": 1,**

**"id": 2,**

**"name": "quo vero reiciendis velit similique earum",**

**"email": "Jayne\_Kuhic@sydney.com",**

**"body": "est natus enim nihil est dolore omnis voluptatem numquam\net omnis occaecati quod ullam at\nvoluptatem error expedita pariatur\nnihil sint nostrum voluptatem reiciendis et"**

**}**

**]**

**}**

**for x in mydemo["alldemo"]:**

**print(x["email"])**