**Python List**

Lists are used to store multiple items in a single variable.

Lists are created using square brackets.

List items are ordered, changeable, and allow duplicate values.

**Ordered**: The items have a defined order, and that order will not change. If you add new items to a list, the new items will be placed at the end of the list.

**Mutable/Changeable**: The list is changeable, meaning that we can change, add, and remove items in a list after it has been created.

**Allow duplicates**: Since lists are indexed, lists can have items with the same value

List items are indexed, the first item has index [0], the second item has index [1] etc.

List items can be of any data type.

|  |  |
| --- | --- |
| 0: | 10 |
| 1: | 2.3 |
| 2: | 50 |
| 3: | 44.66 |
| 4: | 5.66 |
| 5: | 40 |
| 6: | ‘s’ |

Ex:

**Create list**

**#Empty list**  
\_empty\_list=[]  
print(\_empty\_list)**#[]**

**#Create a list**  
\_list=[10,2.3,50,44.66,5.66,40,'s']  
print(\_list) **# [10, 2.3, 50, 44.66, 5.66, 40, 's']**

**#Nested list**  
\_nested\_list=[[1,2],[5,6]]  
print(\_nested\_list) **#[[1, 2], [5, 6]]**

#Print the first index list  
print(\_nested\_list[1]) **#[5, 6]**

#Print the zero index element in the zero index list  
print(\_nested\_list[0][0])**#1**

**Len() — determine how many items a list has**.

myList = [10,20,50,100,30]

print(len(myList)) #5

**list() — list constructor can be used to create a list**

my\_list=list(("apple","Orange","grapes"))  
print(my\_list) # ['apple', 'Orange', 'grapes']

**Access the List Item :**

List items are indexed and can access by referring to the index number of the element.

my\_list=list(("apple","Orange","grapes"))  
print(my\_list [2]) # grapes

**Negative Indexing :** which starts from the end. -1 refers to the last item, -2 refers to the second last item.

my\_list=list(("apple","Orange","grapes"))  
print(my\_list [-3]) # apple

**Range of Index:** a range of index can specify by specifying where to start and where to end the range. When specifying a range, the return value will be a new list with the specified items.

**Note:** The search will start at index 2 (included) and end at index 5 (not included).

thislist = ["apple", "banana", "cherry", "orange", "kiwi", "melon", "mango"]  
print(thislist[2:5]) # ['cherry', 'orange', 'kiwi']

**Note:** The search will start at index 0 (included) and end at index 5 (not included).

thislist = ["apple", "banana", "cherry", "orange", "kiwi", "melon", "mango"]  
print(thislist[:5]) # ['apple', 'banana', 'cherry', 'orange', 'kiwi']

**Note**: The search will start at index 6 (included) and the range will go on to the end of the list.

thislist = ["apple", "banana", "cherry", "orange", "kiwi", "melon", "mango"]  
print(thislist[6:]) #['mango']

**Range of negative Index:** If need anything to search from the end of the list, can specify the negative indexes

**Note**: The search will start at index -1 (not included) and end at index -5 (included).

thislist = ["apple", "banana", "cherry", "orange", "kiwi", "melon", "mango"]  
print(thislist[-5:-1]) # ['cherry', 'orange', 'kiwi', 'melon']

**Change the List Item Value:**

**To change the list item, require specifying the index of the item**.

thislist = ["apple", "banana", "cherry", "orange", "kiwi", "melon", "mango"]  
thislist[2] = "Papaya"  
print(thislist) # ['apple', 'banana', 'Papaya', 'orange', 'kiwi', 'melon', 'mango']

**Change a range of items value**

thislist = ["apple", "banana", " Papaya ", "orange", "kiwi", "melon", "mango"]  
thislist[3:5] = ["blackcurrant", "watermelon"]  
print(thislist) # ['apple', 'banana', 'Papaya', 'blackcurrant', 'watermelon', 'melon', 'mango']

**insert()—Without changing the existing values, can add values at the specified index by using insert() method.**

thislist = ["apple", "banana", " Papaya ", " blackcurrant ", " watermelon ", "melon", "mango"]  
thislist.insert(0,"Grapes")  
print(thislist) # ['Grapes', 'apple', 'banana', 'Papaya', 'blackcurrant', 'watermelon', 'melon', 'mango']

**Append the List Item**

**Append()—**To add the item at the end of the list, append() method will be used.

thislist = ["apple", "banana", " Papaya ", "orange", "kiwi", "melon", "mango"]  
thislist.append("grapes")  
print(thislist) #['apple', 'banana', ' Papaya ', 'orange', 'kiwi', 'melon', 'mango', 'grapes']

**Extend the List Items**

**Extend()—**To append the items from another list to current list, extend() method will be used.

Lsit1 = ["apple", "banana", " Papaya "]

List2= ["orange", "kiwi", "melon", "mango"]  
List1.extend(List2)

print(List1) # ["apple", "banana", " Papaya ", orange", "kiwi", "melon", "mango"]

Also, using extend(), can add an iterable objects like tuple, sets and dictionaries.

l1=["apple”, “orange"]  
t1=("dog", "cat")  
d1={"name”: medhavi", "age":"27"}  
l1.extend(t1)  
l1.extend(d1)  
print(l1) # ['apple', 'orange', 'dog', 'cat', 'name', 'age']

**Remove the List Item**

**Del –** this keyword can be used to delete specified item from the list by specifying the index. Also, del keyword can delete the entire list.

thislist = ["apple", "banana", " Papaya ", "orange", "kiwi", "melon", "mango"]  
del thislist [0]  
print(thislist) # ['banana', ' Papaya ', 'orange', 'kiwi', 'melon', 'mango']

thislist = ["apple", "banana", " Papaya ", "orange", "kiwi", "melon", "mango"]  
del thislist

print(thislist) # NameError: name 'test' is not defined

**Remove()**—this method is used to remove the items by specifying the value

thislist = [ "banana", " Papaya ", "orange", "kiwi", "melon", "mango"]

thislist.remove("banana")

print(thislist) # [" Papaya ", "orange", "kiwi", "melon", "mango"]

**pop()**—this method is used to remove the specified index’s value. If not specified the index, pop will remove the last index value of the list

thislist = [ " Papaya ", "orange", "kiwi", "melon", "mango"]

thislist.pop(0)

print(thislist) # ["orange", "kiwi", "melon", "mango"]

thislist = ["orange", "kiwi", "melon", "mango"]

thislist.pop()

print(thislist) # ["orange", "kiwi", "melon"]

**clear()—**remove all items in the list and make the list as empty

test = ["apple", "banana", " Papaya ", "orange", "kiwi", "melon", "mango"]  
test.clear()  
print(test) # []