PYTHON

20
Session

Step by Step Coding

All Code in Git

List

- List

List are one out of 4 built-in data types in Python. Which is used to store multiple items in a single variable. Where all items are indexed, ordered, changeable, and allow duplicate values.

- # List Representation

The elements will be placed within square brackets and with comma separator.

Ex:

```
String type List

countryName=["INDIA","USA","UK","SRI LANKA","CHINA","ITLY"]
```

List

- List characteristics
  - Insertion order Preserved
  - Duplicate Object are Allowed
  - Heterogeneous Object are Allowed
  - Dynamic Size
  - It Support +Ve and -Ve Index
  - List Object are mutable

- List Object Creation
  - Empty List
  - List with Element
  - List with Dynamic Input
  - List with list() function
  - List with split() function

List

- Accessing Elements of List

  1. By Using Index
  2. By Using Slice Operator

List

- Mutability

  Once we create the list object , we can modify its content

- Traversing the List Element

  1. Using While loop
  2. Using For loop

List

- List Function

  - len(): It return number of element present in the List

    Ex: myList=[1,2,3,4]
    Print(len(myList))
    Output : 4

List

- List Function
  - count(): It return the number of occurrence of specified item in the list

Ex: myList= [1,1,2,2,3,3,4,4]

```
print(myList.count(1))  Output : 2
print(myList.count(2))  Output : 2
print(myList.count(3))  Output : 2
print(myList.count(4))  Output : 2
```

- List Function
  - index(): It return the index of first occurrence of specified item in the list

Ex: myList= [1,1,2,2,3,3,4,4]

```
print(myList.index(1))  Output : 0
print(myList.index(2))  Output : 2
print(myList.index(3))  Output : 4
print(myList.index(4))  Output : 6
```

- List Function
  - append(): Add the item at the end of the list

Ex: myList= []

```
        myList.append(“A”)
        myList.append(“B”)
        myList.append(“C”)
```

- List Function

  - insert(): To Insert the items at specified index position

    Ex: myList= [1,3,4,5,6]

    myList.insert(1,2)

    Output= [1,2,3,4,5,6]

- # List Function

Difference between append() & insert()

append()	insert()
In List when we add any element it will come in last . i.e It will be last element	In List we can insert any element in particular index number .

- List Function

  - extend(): To add all items of one list to another list.

    Ex: myList1= [1,3,5,7] myList2= [2,4,6,8]

    myList1.extends(myList2)

    print(myList1) Output= [1,3,5,7,2,4,6,8]

List Function

- remove(): This function is to remove the specified item from the list. If the item present multiple times then only first occurrence will be removed

```
Ex: myList1= [1,3,5,7,8]
      myList1.remove(7)
      print(myList1)      Output= [1,3,5,8]
```

- List Function
  - pop(): It removes and returns the last element of the list

    This is only function which manipulates list and returns some element

Ex: myList1= [1,3,5,7,8]

```
myList1.pop()
print(myList1)
```

Output = 8

```
myList1.pop(1)
print(myList1)
```

Output = 3

- # Difference between remove() and pop()

remove()	pop()
1. We can use to remove special element from the list	1. We can use to remove last element from the list.
2. It Can not return any value	2. It returned removed element .
3. If special element not available then we get VALUE ERROR	3. If List is empty then we get error.

- List Function
    - reverse(): We can use to reverse() order of elements of list.

```
Ex: myList1= [1,3,5,7,8]

        myList1.reverse()
        print(myList1)

        Output = [8,7,5,3,1]
```

- # List Function

  - sort(): In List by default insertion order is preserved . If want to sort the elements of a list according to default natural sorting order then we should got for sort() method

Number : Default natural sorting order is Ascending Order .

String : Default natural sorting order is Alphabetical Order .

Ex: myList1= [10,8,5,7,9]

```
myList.sort()
print(myList1)
```

Output = [5,7,8,9,10]

```
myList.sort(reverse=true)
```

Output = [10,9,8,7,5]

- List Operators
  - Concatenation Operator (+)

Ex: myList1= [10,8,5,7,9]

myList2= [1,2,3,4,5]

myList= myList1 + myList2

print(myList)

Output = [10,8,5,7,9,1,2,3,4,5]

List

- List Operators
  - Repetition Operator (*)

Ex: myList1= [10,20,30]

myList= myList1 + 3

print(myList)

Output = [10,20,30,10,20,30,10,20,30]

- List Operators
  - “in” AND “ not in ”Operator

Ex: myList1= [10,20,30,40,50]

```
print(10 in n)        Output = True
print(10 not in n)    Output = False
print(50 in n)        Output = True
print(60 not in n)    Output = True
```

- List Comparing

```
myList1= [“A”, “B”, “C”  ]
myList2= [ “A”, “B”, “C”  ]
myList3= [“a”, “b”, “c”  ]

 print(myList1==myList2)  Output:True
 print(myList1==myList3)  Output:False
 print(myList1 !=myList3)  Output:True
```

List

- ## Nested List

A list inside another list is called nested list

myList2= [“A”, “B”, “C” ,[“D”, “E”, “F”]]

print(myList2)   Output = [“A”, “B”, “C” ,[“D”, “E”, “F”]]

print(myList2[0])   Output: A

print(myList2[3])   Output: [“D”, “E”, “F”]

print(myList2[2][0])   Output: “D”

String Methods …

Thank You