ASSIGNMENT/TASK 2

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(Q.1) Is a list mutable?
ANS. Yes, List in Python is mutable

```
lt=[10,20,30,40,'abc']
print(lt)
```

⤷　[10, 20, 30, 40, 'abc']

(Q.2)Does a list need to be homogeneous?

Lists are best for Homogeneous data, and List commonly used or homogeneous data.

```
lt=['This','is',20,0.9]
print(lt)
```

　　['This', 'is', 20, 0.9]

(Q.3)What is the difference between a list and a tuple?
ANS.In List We use [] for Reprsenting and its mutable In tuple We use () for Reprsening and its immutable

(Q.4)How to find the number of elements in the list?
We Use len() function returns he number of elements in a list.

```
lt=['This','is','a','list','of','example',12345]
print(len(lt))
```

　　7

(Q.5)How to check whether the list is empty or not?
ANS. if len(list)==0: using this function we can check list is empty or not.

```
lt = ['This','is','a','list','empy','or','not',12345678]
if len(lt)==0:
  print("List is empty");
```

```
  print( List is empty ),
else:
  print("List is elements");
```

```
        List is elements
```

(Q.6)How to find the first and last element of the list?

```
lt = [20,22,13,14,12]
print('First Elemens:',lt[0])
print('Last Elements:',lt[-1])
```

```
        First Elemens: 20
        Last Elements: 12
```

7.How to find the largest and lowest value in the list?lst = []

ANS. num = int(input('How many numbers: '))for n in range(num): numbers = int(input('Enter number ')) lst.append(numbers) print("Maximum element in the list is :", max(lst), "\nMinimum element in the list is :", min(lst))

```
print('Minimum Elements:',min(lt))
print('Maximum List:',max(lt))
```

```
        Minimum Elements: 12
        Maximum List: 22
```

8.How to access elements of the list?

ANS. Using Index value we can access the elements in list.

```
print('Access Single Elements:',lt[0])
print('Access Multiple Elements:',lt[1:3])
```

```
        Access Single Elements: 20
        Access Multiple Elements: [22, 13]
```

9.Remove elements in a list before a specific index

ANS.

```
lt.pop(1)
print(lt)
```

```
        [20, 13, 14, 12]
```

10.Remove elements in a list between 2 indices

```
del lt[2:3]
print(lt)
```

```
    [20, 13, 12]
```

11.Return every 2nd element in a list between 2 indices

ANS.

```
lt = [23,451,31,54,612,341]
print(lt[1:6:2])
```

```
    [451, 54, 341]
```

12.Get the first element from each nested list in a list

ANS.

```
lt = [[1,2,3],[4,5,6]]
for row in lt:
  print(row[0])
```

```
    1
    4
```

13.How to modify elements of the list?

ANS. We use assignment operator('=')

```
lt = ['This','is','a','Example',1234]
list[3] = 'lt'
print(lt)
```

```
    ['This', 'is', 'a', 'Example', 1234]
```

14.How to concatenate two lists?

ANS.Using + Operator

```
lt1 = [1,2,3,4,5,6]
lt2 = [121,212,313,414,515,616]
print(lt1 + lt2)
```

```
    [1, 2, 3, 4, 5, 6, 121, 212, 313, 414, 515, 616]
```

15.How to add two lists element-wise in python?

ANS.

```
sum_lt = []
for i in range(len(lt1)):
  sum_lt.append(lt1[i]+lt2[i])
print(sum_lt)

    [122, 214, 316, 418, 520, 622]
```

16.Difference between del and clear?

ANS. del() use for remove items,clear() use for empty the entire list

```
lt1 = [1,2,3]  #for clear()
lt1.clear()
print('list after clearing:',lt1)

li1 = [1,2,3]  #for del()
del lt1
print('list after deleting:',lt1)
```

17.Difference between remove and pop?

ANS. remove() and pop() are used to remove elsements from the list but remove() requires the element an argument where as pop() requires the index of he element as argument.

```
lt = [1,2,3,4,5,6,7,8]
lt.pop(2) #remove elements at index2
print(lt)

lt = [1,2,3,4,5,6,7,8]
lt.remove(2) #removes element 2
print(lt)

    [1, 2, 4, 5, 6, 7, 8]
```

```
[1, 3, 4, 5, 6, 7, 8]
```

18.Difference between append and extend?

ANS.Python append() method adds an element to a list, and the extend() method concatenates the first list with another list .

```
lt.append(10)
print(lt)
lt.extend([8,9,11])
print(lt)
```

```
[1, 3, 4, 5, 6, 7, 8, 10]
[1, 3, 4, 5, 6, 7, 8, 10, 8, 9, 11]
```

19.Difference between indexing and Slicing?

ANS. Indexing is used to obtain individual elementsusing index number while Slicing is used to obtain a sequence of elements using corresponding index numbers

```
print('Single Element:',lt[0])  #Indexing
print('Muliple Elements:',lt[1:4])  #Slicing
```

```
Single Element: 1
Muliple Elements: [3, 4, 5]
```

20.Difference between sort and sorted?

ANS. sort.sorts the actual list(implace). sorted.sorts a copy of the list(not implace)

```
lt = [2,71,0,4,67]
print(sorted(lt))
print('No changes:',lt)
lt.sort()
print('list is sort',lt)
```

```
[0, 2, 4, 67, 71]
No changes: [2, 71, 0, 4, 67]
list is sort [0, 2, 4, 67, 71]
```

24.How to find an index of an element in the python list?

ANS.index() function is used to find an indext element in the python list.

```
lt = [1,2,22,23,12,45,5,16]
print('index of element 16 is:',lt.index(16))
```

```
index of element 16 is: 7
```

25.)How o find the occurrences of an element in the python list?

ANS.) count() function can be used to find the number of occurrences of an element in the list.

```
lt = [1,1,2,3,4,5,6,7,4,5,2,9]
print('Number of occurrences of element 5 is:', lt.count(5))
```

```
    Number of occurrences of element 5 is: 2
```

26.)How to insert an item at a given position?

ANS. use insert() function

```
lt.insert(0,89)
print(lt)
```

```
    [89, 1, 1, 2, 3, 4, 5, 6, 7, 4, 5, 2, 9]
```

27.)How to check if an item is in the list?

ANS. We Used Conditional Statements if

```
if 4 in lt:
  print("4 is prsent in the list:")
else:
  print("4 is prsent in the list:")
```

```
    4 is prsent in the list:
```

28.)How to flatten a list in python?

ANS.

```
lt = [[1,1,1],[2,2,2],[3,3,3]]
flatten = []
for row in lt:
  for i in row:
    flatten.append(i)
print(flatten)
```

```
    [1, 1, 1, 2, 2, 2, 3, 3, 3]
```

29.)How to convert python list to other data structures like set, tuple, dictionary?

ANS.

```
lt = [10,20,30,40,50]
```

```
list_set = set(lt)
print(type(list_set))

list_tup = tuple(lt)
print(type(list_tup))

list_dict = {'list_values' : lt}
print(type(list_dict))
```

```
<class 'set'>
<class 'tuple'>
<class 'dict'>
```