

## ASSIGNMENT-2

Q1) When to use lists and when to use tuples, dictionaries or sets?

Sol: **LISTS:**

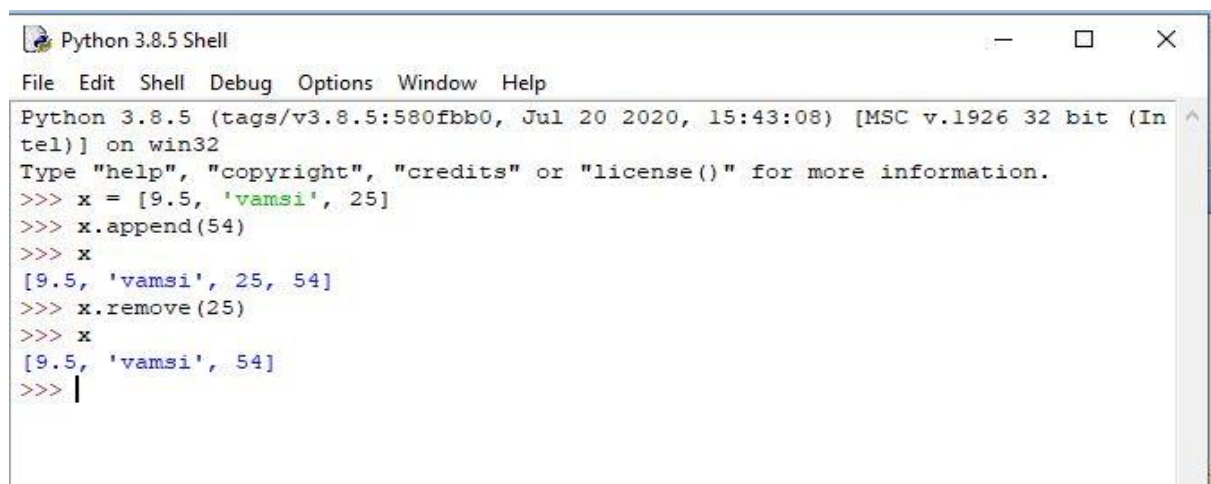
When we have to add or change or remove the elements then we will use lists.

It is used to store an ordered collections of items.

It will supports all types of data in single list.

List is mutable.

e.g : `x = [9.5, 'vamsi', 25]`



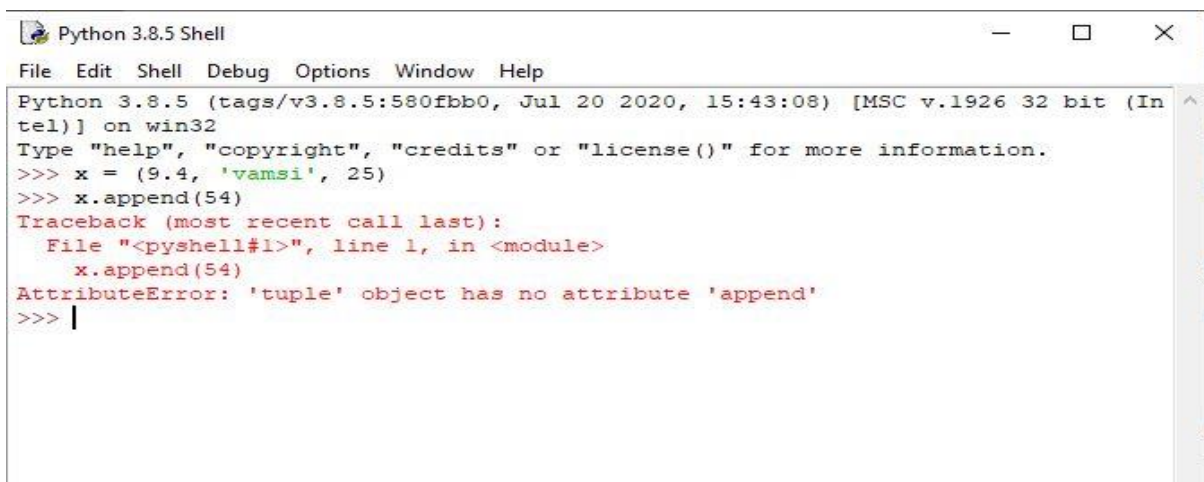
```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> x = [9.5, 'vamsi', 25]
>>> x.append(54)
>>> x
[9.5, 'vamsi', 25, 54]
>>> x.remove(25)
>>> x
[9.5, 'vamsi', 54]
>>> |
```

We can do many more operations

**TUPLE:**

When the data is not to be changed then we will use tuple

It is immutable



```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> x = (9.4, 'vamsi', 25)
>>> x.append(54)
Traceback (most recent call last):
  File "<pyshell#1>", line 1, in <module>
    x.append(54)
AttributeError: 'tuple' object has no attribute 'append'
>>> |
```

## DICTIONARIES:

When we have to find an element easily without searching for all the elements then we use dictionaries.

In the below example by using roll no(key) we will easily retrieve the name(value) without searching for all the elements.

```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> x = {1:'navin',2:'kiran',3:'harsh'}
>>> x[3]
'harsh'
>>> |
```

## SETS:

When we don't want duplicate elements then we have to use sets

It will be display the output by using hash not by sorting order.

```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> x = {22, 25, 14, 21,5}
>>> x
{5, 14, 21, 22, 25}
>>> x = {25, 14, 98, 63, 75, 98}
>>> x
{98, 75, 14, 25, 63}
>>> |
```

Q2) select an element from list?

Sol:

```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> x = [9.5, 'vamsi', 25]
>>> x[1]
'vamsi'
>>> x.index(25)
2
>>> |
```

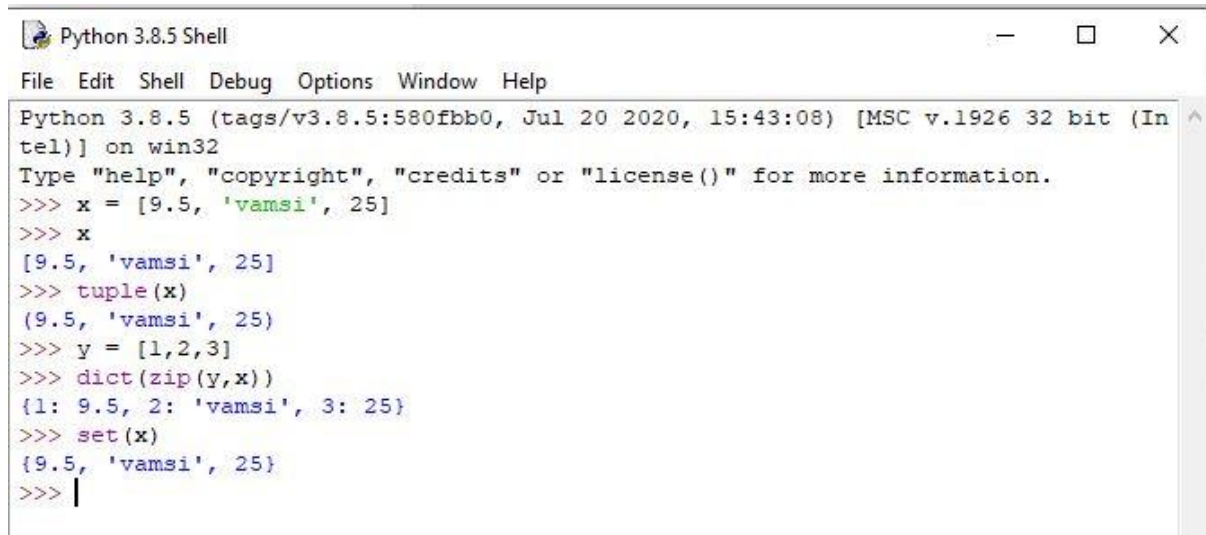
Q3) Transform Lists into other data structures?

Sol: in below list is transformed to other data structures

List → tuple

List → dictionary

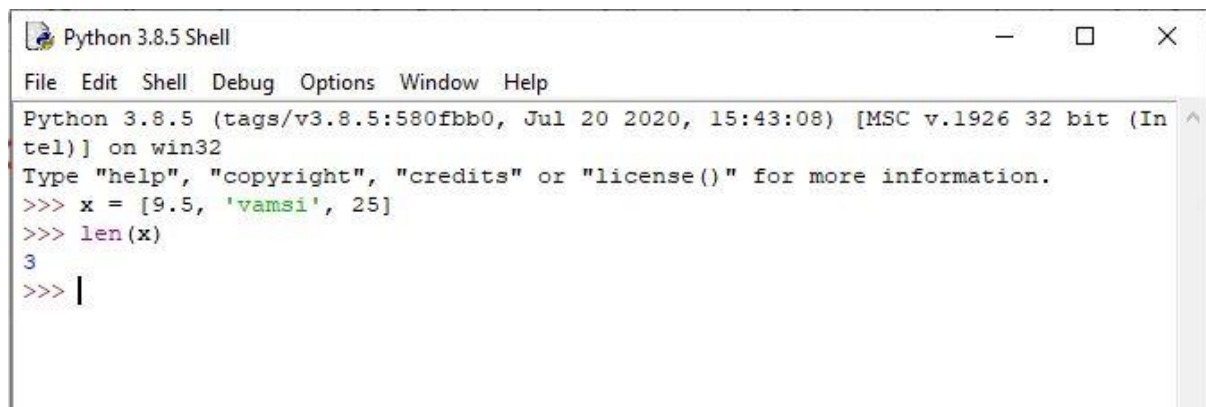
List → set



```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> x = [9.5, 'vamsi', 25]
>>> x
[9.5, 'vamsi', 25]
>>> tuple(x)
(9.5, 'vamsi', 25)
>>> y = [1,2,3]
>>> dict(zip(y,x))
{1: 9.5, 2: 'vamsi', 3: 25}
>>> set(x)
{9.5, 'vamsi', 25}
>>> |
```

Q4) Determine the size of list?

Sol: By using len() we can find the size of list.



```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> x = [9.5, 'vamsi', 25]
>>> len(x)
3
>>> |
```

Q5) what's the difference between the python append() and extend() methods?

Sol: append()

It will add only one element in the end of list.

extend()

it will add multiple elements at a time in the end of list.

```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> x = [9.5, 'vamsi', 25]
>>> x.append(4)
>>> x
[9.5, 'vamsi', 25, 4]
>>> x.extend([6,8])
>>> x
[9.5, 'vamsi', 25, 4, 6, 8]
>>> x.append([5,7])
>>> x
[9.5, 'vamsi', 25, 4, 6, 8, [5, 7]]
>>> |
```

Q6) How to concatenate lists?

Sol: By using "+" symbol

```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> x = [9.5, 'vamsi', 25]
>>> y = [4,7,9]
>>> x + y
[9.5, 'vamsi', 25, 4, 7, 9]
>>> |
```

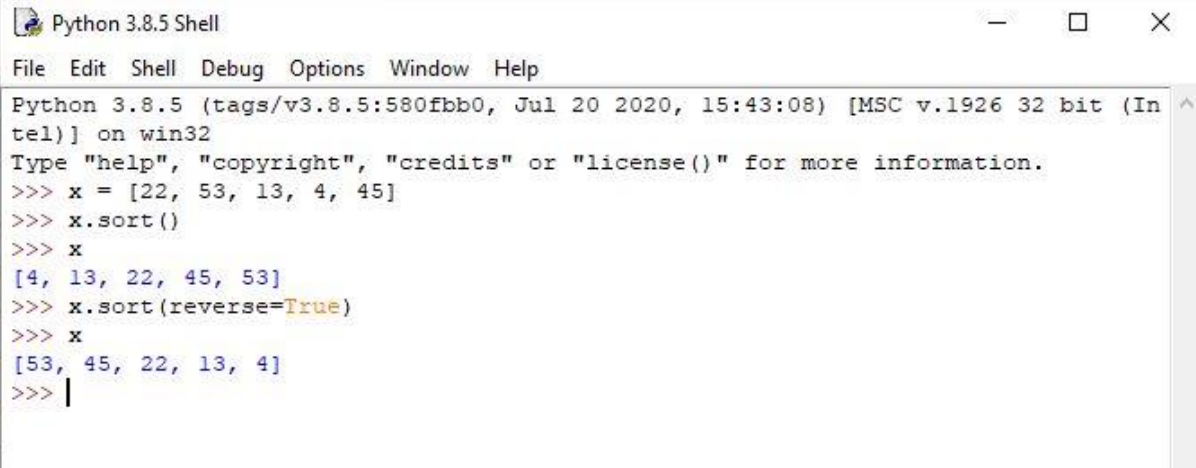
Q7) How to sort a list?

Sol: By using sort() function.

```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> x = [22, 53, 13, 4, 45]
>>> x.sort()
>>> x
[4, 13, 22, 45, 53]
>>> x.sort(reverse=True)
>>> x
[53, 45, 22, 13, 4]
>>> |
```

Q8) How to clone or copy a list?

Sol: By using copy() function



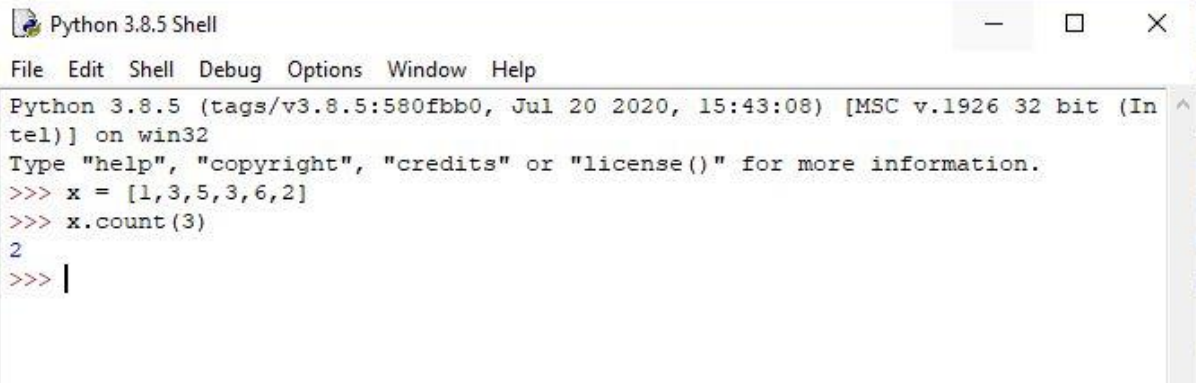
```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> x = [22, 53, 13, 4, 45]
>>> x.sort()
>>> x
[4, 13, 22, 45, 53]
>>> x.sort(reverse=True)
>>> x
[53, 45, 22, 13, 4]
>>> |
```

Q9) How does list comprehension work in python?

Sol: It creates a new list based on the values of the existing list.

Q10) how to count occurrences of a list item in python?

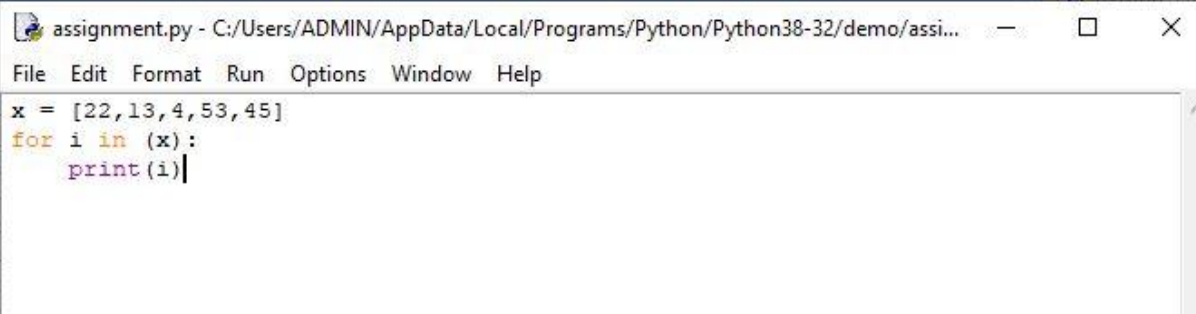
Sol: By using "count()" function.



```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> x = [1,3,5,3,6,2]
>>> x.count(3)
2
>>> |
```

Q11) how to loop over a list?

Sol:



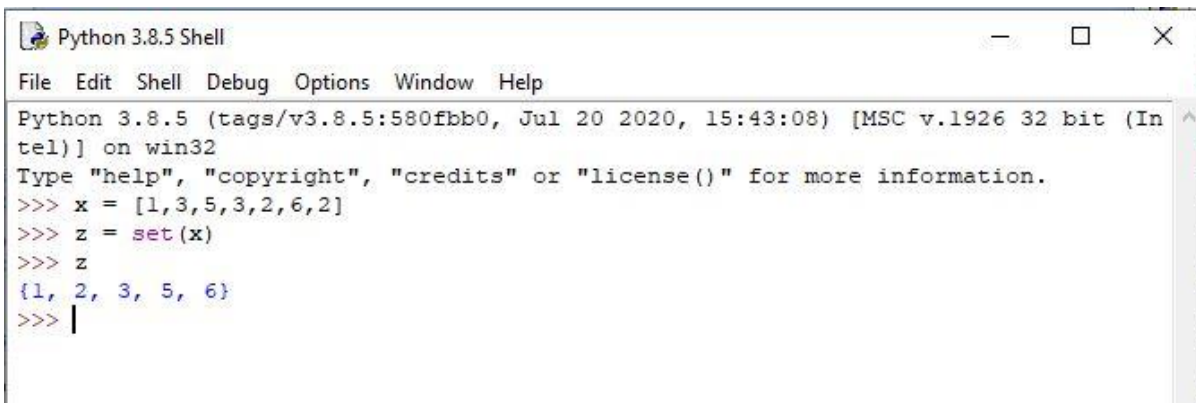
```
assignment.py - C:/Users/ADMIN/AppData/Local/Programs/Python/Python38-32/demo/assi...
File Edit Format Run Options Window Help
x = [22,13,4,53,45]
for i in (x):
    print(i)|
```

Output:

```
= RESTART: C:/Users/ADMIN/AppData/Local/Programs/Python/Python38-32/demo/assignm
ent.py
22
13
4
53
45
>>> |
```

Q12) how to remove duplicates from the list?

Sol:



```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> x = [1,3,5,3,2,6,2]
>>> z = set(x)
>>> z
{1, 2, 3, 5, 6}
>>> |
```