Data Structure in Python

datatype -- user or developer assign only 1 value or 1 element
data Structure -- user assign more than one value or more elements to a variable
table or dataframe -- collection of data structure
#data Structure = collection of datatype.

'''DataStructure divided into 2 parts
1. inbuild data structure
   List
   Tuple
   Set
   Dictionary
   Range
2. user define data structure
   Stack
   Heap
   Linked List
   Tree
   Queue
   hashmap

--> user define datastrure automatically take care by some library or modul
--> sklearn,tenserflow,numpy,pandas,matplotlib,seaborn
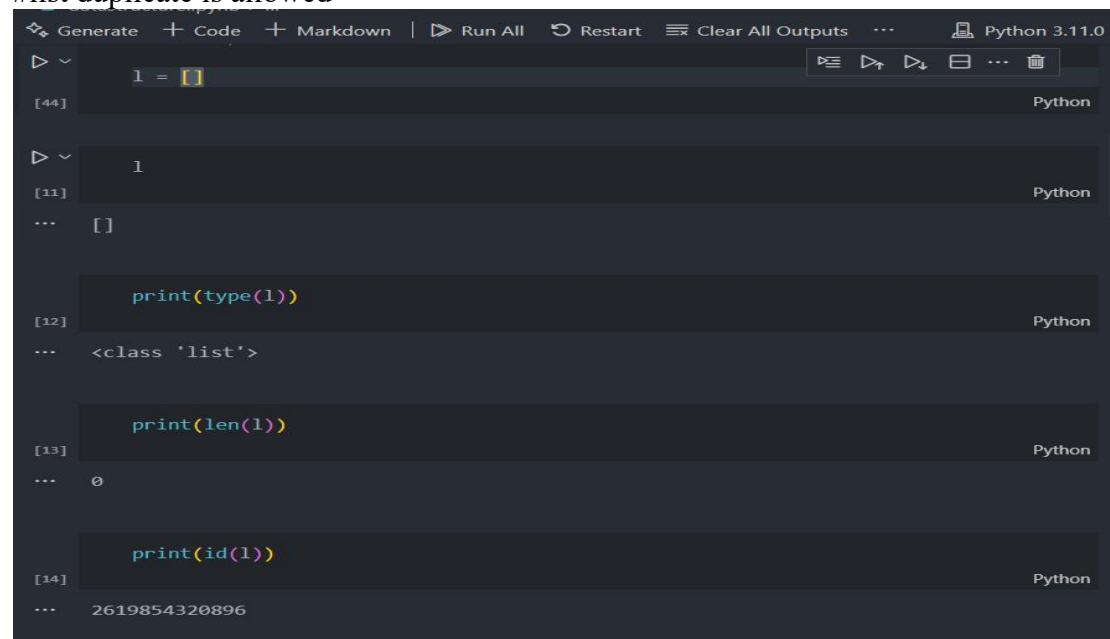
List
#List assign with [] brackets
#append() -- add the element at last
#copy() -- copy the list
#count() -- count the number of element in the list
#list - multiple datatype is allowed
#list duplicate is allowed

```python
l = []
```
[44]

```python
l
```
[11]

[]

```python
print(type(l))
```
[12]

<class 'list'>

```python
print(len(l))
```
[13]

0

```python
print(id(l))
```
[14]

2619854320896
```

```python
l.append(10)
```
[15]   Python

```python
l
```
[16]   Python

    [10]

```python
l.append(20)
l.append(30)
l.append(40)
```
[17]   Python

```python
l
```
[18]   Python

    [10, 20, 30, 40]

```python
len(l)
```
[19]   Python

    4

```python
l
```
[20]   Python

    [10, 20, 30, 40]

```python
l1 = l.copy()
l1
```
[21]   Python

    [10, 20, 30, 40]

```python
l == l1
```
[22]   Python

    True

```python
l !=l1
```
[23]   Python

    False

                    ✦ Generate   ＋ Code   ＋ Markdown

```python
l1
```
[24]   Python

    [10, 20, 30, 40]

```python
l1.append(50)
l1.append(100)
```
[25]   Python

```python
l == l1
```
[26]   Python

⋯   False

```python
l != l1
```
[27]   Python

⋯   True

```python
print(len(l))
print(len(l1))
```
[28]   Python

⋯   4
6

```python
print(l)
print(l1)
```
[30]   Python

⋯   [10, 20, 30, 40]
[10, 20, 30, 40, 50, 100]

```python
id(l1)
```
[31]   Python

⋯   2619854797120

```python
l1.clear()
```
[32]   Python

```python
l1
```
[33]   Python

⋯   []

```python
id(l1)
```
[34]   Python

⋯   2619854797120

```python
l
```
[35]   Python

⋯   [10, 20, 30, 40]

```python
l.append('nit')
l.append(1 + 2j)
l.append(True)
l.append([1,2,3])
```
[39]   Python

```python
l
```
[40]   Python

···   [10, 20, 30, 40, 10.0, 'nit', (1+2j), True, [1, 2, 3]]

```python
l.append(10)
```
[42]   Python

```python
l
```
[43]   Python

···   [10, 20, 30, 40, 10.0, 'nit', (1+2j), True, [1, 2, 3], 10, 10]