Python Data Structure

1. List

In [4]:
```
l = []
l
```

Out[4]:
```
[]
```

In [6]:
```
type (l)
```

Out[6]:
```
list
```

In [7]:
```
len(l)
```

Out[7]:
```
0
```

In [8]:
```
id(l)
```

Out[8]:
```
1124920449216
```

In [9]:
```
l.append(10)
```

In [10]:
```
l
```

Out[10]:
```
[10]
```

In [11]:
```
len(l)
```

Out[11]:
```
1
```

In [12]:
```
l.append(20)
l.append(30)
l.append(40)
l.append(50)
```

In [13]:
```
l
```

Out[13]:
```
[10, 20, 30, 40, 50]
```

In [14]:
```
len(l)
```

Out[14]:
```
5
```

In [15]:
```
l1 = l.copy()
```

In [16]:
```
l1
```

Out[16]: [10, 20, 30, 40, 50]

In [17]:
```
l == l1
```

Out[17]: True

In [18]:
```
l != l1
```

Out[18]: False

In [19]:
```
l1.append(100)
```

In [20]:
```
l == l1
```

Out[20]: False

In [21]:
```
l !=l1
```

Out[21]: True

In [22]:
```
print (len(l))
print (len(l1))
```

```
5
6
```

In [23]:
```
l
```

Out[23]: [10, 20, 30, 40, 50]

In [24]:
```
print (l)
print (l1)
```

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

In [25]:
```
id(l1)
```

Out[25]: 1124920617664

In [26]:
```
len(l1)
```

Out[26]: 6

In [27]:
```
l1.clear()
```

In [28]:
```
l1
```

Out[28]: []

In [29]:
```
l.append(2.3, 34)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[29], line 1
----> 1 l.append(2.3, 34)

TypeError: list.append() takes exactly one argument (2 given)
```

In [31]:
```
l.append('nit')
l.append(2.3)
l.append(1+2j)
l.append(True)
l.append([1,2,3])
```

In [32]:
```
l
```

Out[32]:
```
[10, 20, 30, 40, 50, 'nit', 'nit', 2.3, (1+2j), True, [1, 2, 3]]
```

In [33]:
```
l.append(10)
```

In [34]:
```
l
```

Out[34]:
```
[10, 20, 30, 40, 50, 'nit', 'nit', 2.3, (1+2j), True, [1, 2, 3], 10]
```

String Indexing

Forward indexing

backwoard indexing

step indexing

In [35]:
```
s
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[35], line 1
----> 1 s

NameError: name 's' is not defined
```

In [36]:
```
s='hello'
```

In [37]:
```
s
```

Out[37]:
```
'hello'
```

In [38]:
```
print (s[0])
```

```
h
```

In [39]:
```
print (s[0])
print (s[1])
print (s[2])
print (s[3])
print (s[4])
```

```
h
e
l
l
o
```

In [40]:
```
s1 = 'nareshit'
```

In [41]:
```
s + s1
```

Out[41]:
```
'hellonareshit'
```

In [43]:
```
s3 = s + s1
```

In [44]:
```
s3
```

Out[44]:
```
'hellonareshit'
```

In [45]:
```
s3 = [3:7]
```

```
  Cell In[45], line 1
    s3 = [3:7]
          ^
SyntaxError: invalid syntax
```

In [46]:
```
s[2:5]
```

Out[46]:
```
'llo'
```

In [47]:
```
s2 = 'r', 'g', 'y'
```

In [48]:
```
s2
```

Out[48]:
```
('r', 'g', 'y')
```

In [49]:
```
s2[1:4]
```

Out[49]:
```
('g', 'y')
```

In [ ]:
```

```