In [119…
```
l = [10, 20, 30, 35, 40, 3, 10, 15, 20, 30, 40, 2.3, 1]
l1 = [40, 30, 20, 15, 10, 2.3, 1]
l2 = [10, 15, 20, 30, 40, 2.3, 1]
```

In [121…
```
print(l)
print(l1)
print(l2)
```

```
[10, 20, 30, 35, 40, 3, 10, 15, 20, 30, 40, 2.3, 1]
[40, 30, 20, 15, 10, 2.3, 1]
[10, 15, 20, 30, 40, 2.3, 1]
```

# String Slicing(Data Type)

In [124…
```
s1 = 'nit'
s1
```

Out[124… 'nit'

In [126…
```
s1[0]
```

Out[126… 'n'

In [128…
```
s1[1]
```

Out[128… 'i'

In [130…
```
s1[2]
```

Out[130… 't'

In [132…
```
s1[3] # string index out of range
```

```
---------------------------------------------------------------------------
IndexError                                Traceback (most recent call last)
Cell In[132], line 1
----> 1 s1[3] # string index out of range

IndexError: string index out of range
```

In [134…
```
s1
```

Out[134… 'nit'

In [136…
```
for i in s1:
    print(i)
```

```
n
i
t
```

In [138…
```
s1
```

Out[138… 'nit'

# String Slicing

In [141…
```
l = [10, 20, 30, 35, 40, 3, 10, 15, 20, 30, 40, 2.3, 1]
```

In [143…
```
print(l)
```

```
[10, 20, 30, 35, 40, 3, 10, 15, 20, 30, 40, 2.3, 1]
```

In [145…
```
l[::]
```

Out[145… [10, 20, 30, 35, 40, 3, 10, 15, 20, 30, 40, 2.3, 1]

In [147…
```
l[0:8]
```

Out[147… [10, 20, 30, 35, 40, 3, 10, 15]

In [149…
```
l[:]
```

Out[149… [10, 20, 30, 35, 40, 3, 10, 15, 20, 30, 40, 2.3, 1]

In [151…
```
l[3:]
```

Out[151… [35, 40, 3, 10, 15, 20, 30, 40, 2.3, 1]

In [153…
```
l
```

Out[153… [10, 20, 30, 35, 40, 3, 10, 15, 20, 30, 40, 2.3, 1]

In [155…
```
l[:7]
```

Out[155… [10, 20, 30, 35, 40, 3, 10]

In [157…
```
l
```

Out[157… [10, 20, 30, 35, 40, 3, 10, 15, 20, 30, 40, 2.3, 1]

In [159…
```
l[0:20:5]
```

Out[159… [10, 3, 40]

In [161…
```
l
```

Out[161… [10, 20, 30, 35, 40, 3, 10, 15, 20, 30, 40, 2.3, 1]

In [163…
```
l[3:10:3]
```

Out[163… [35, 10, 30]

In [165…
```
l
```

Out[165… [10, 20, 30, 35, 40, 3, 10, 15, 20, 30, 40, 2.3, 1]

In [167…
```
l[::-1]
```

Out[167… [1, 2.3, 40, 30, 20, 15, 10, 3, 40, 35, 30, 20, 10]

In [169…
```
l
```

Out[169… [10, 20, 30, 35, 40, 3, 10, 15, 20, 30, 40, 2.3, 1]

In [171…
```
l[::-2]
```

Out[171… [1, 40, 20, 10, 40, 30, 10]

In [173…
```
l
```

Out[173… [10, 20, 30, 35, 40, 3, 10, 15, 20, 30, 40, 2.3, 1]

In [175…
```
l[::-3]
```

Out[175… [1, 30, 10, 35, 10]

In [177…
```
l1
```

Out[177… [40, 30, 20, 15, 10, 2.3, 1]

In [179…
```
l1[0]
```

Out[179… 40

In [181…
```
l1[0] = 45
```

In [183…
```
l1
```

Out[183… [45, 30, 20, 15, 10, 2.3, 1]

In [185…
```
l1[-1] = 'nit'
```

In [187…
```
l1
```

Out[187… [45, 30, 20, 15, 10, 2.3, 'nit']

In [189…
```
l1[-1][0] #nested slicing
```

Out[189… 'n'

In [191…
```
print(l1[-1][0])
print(l1[-1][1])
print(l1[-1][2])
```

```
n
i
t
```

In [193…
```
l1
```

Out[193… [45, 30, 20, 15, 10, 2.3, 'nit']

In [195…
```
l2
```

Out[195… [10, 15, 20, 30, 40, 2.3, 1]

In [197…
```
len(l2)
```

Out[197… 7

In [199…
```
l3
```

Out[199… [10, 15, 20, 30, 40, 2.3, 1]

In [201…
```
l4 = l3 + l2
```

# List Membership

In [204…
```
l4
```

Out[204… [10, 15, 20, 30, 40, 2.3, 1, 10, 15, 20, 30, 40, 2.3, 1]

In [206…
```
15 in l4
```

Out[206… True

# Enumerate

In [209…
```
l1
```

Out[209… [45, 30, 20, 15, 10, 2.3, 'nit']

In [211…
```
for i in l1:
    print(i)
```

```
45
30
20
15
10
2.3
nit
```

In [213…
```
for i in enumerate (l1):
    print(i)
```

```
(0, 45)
(1, 30)
(2, 20)
(3, 15)
(4, 10)
(5, 2.3)
(6, 'nit')
```

In [215…
```
l1
```

Out[215… [45, 30, 20, 15, 10, 2.3, 'nit']

In [217…
```
l3
```

Out[217…
```
[10, 15, 20, 30, 40, 2.3, 1]
```

In [219…
```
all(l3)
```

Out[219…
```
True
```

In [221…
```
any(l3)
```

Out[221…
```
True
```

In [223…
```
l3.append(0)
l3
```

Out[223…
```
[10, 15, 20, 30, 40, 2.3, 1, 0]
```

In [225…
```
all(l3)
```

Out[225…
```
False
```

In [227…
```
any(l3)
```

Out[227…
```
True
```

# List DS

In [ ]:
```

```