```python
In [1]:  import sys
         sys.version
```

Out[1]: '3.10.9 | packaged by Anaconda, Inc. | (main, Mar 1 2023, 18:18:15) [MSC v.1916 64 b
it (AMD64)]'

Data Structure

```python
In [2]:  # Built-in datatype
         """List
             tuple
             set
             dict"""
```

Out[2]: 'List\n   tuple\n   set\n   dict'

```python
In [3]:  l1 = []
```

```python
In [4]:  type(l1)
```

Out[4]: list

```python
In [5]:  l1.append(100)
```

```python
In [6]:  l1.append(200)
```

```python
In [7]:  l1.append(300)
         l1.append(400)
         l1.append(500)
```

```python
In [8]:  l1
```

Out[8]: [100, 200, 300, 400, 500]

```python
In [9]:  l1.sort()
```

```python
In [10]:  l1
```

Out[10]: [100, 200, 300, 400, 500]

```python
In [11]:  l1.reverse()
```

```python
In [12]:  l1
```

Out[12]: [500, 400, 300, 200, 100]

```python
In [14]:  l1.remove(500)
```

```python
In [15]:  l1
```

Out[15]: [400, 300, 200, 100]

----------> LIST

```
In [16]:  ls1 = []
```

```
In [17]:  ls1.append(100)
          ls1.append(200)
          ls1.append(900)
          ls1.append(500)
          ls1.append(800)
```

```
In [18]:  ls1
```

```
Out[18]:  [100, 200, 900, 500, 800]
```

```
In [19]:  ls2 = ls1.copy()
          print(ls2)
```

```
          [100, 200, 900, 500, 800]
```

```
In [20]:  ls1!=ls2
```

```
Out[20]:  False
```

```
In [21]:  id(ls1)!=id(ls2)
```

```
Out[21]:  True
```

```
In [22]:  id(ls1)
```

```
Out[22]:  2187989646784
```

```
In [23]:  id(ls2)
```

```
Out[23]:  2187989900096
```

```
In [26]:  ls2[3]==500
```

```
Out[26]:  True
```

```
In [28]:  str(ls2[3].replace("500","600"))
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
Cell In[28], line 1
----> 1 str(ls2[3].replace("500","600"))

AttributeError: 'int' object has no attribute 'replace'
```

```
In [ ]:   ls2
```

```
In [ ]:   ls[2]=500
```

```
In [29]:  ls2
```

```
Out[29]:   [100, 200, 900, 500, 800]

In [32]:   ls2[2]=500

In [33]:   ls2

Out[33]:   [100, 200, 500, 500, 800]

In [34]:   ls1

Out[34]:   [100, 200, 900, 500, 800]

In [35]:   ls2

Out[35]:   [100, 200, 500, 500, 800]

In [36]:   ls2.count(500)

Out[36]:   2

In [37]:   ls1.count(500)

Out[37]:   1

In [39]:   ls1==ls2

Out[39]:   False

In [40]:   ls1!=ls2

Out[40]:   True

In [42]:   ls2.index(800)

Out[42]:   4

In [43]:   ls2[4]

Out[43]:   800

In [44]:   ls2[1:2]

Out[44]:   [200]

In [45]:   ls2.clear()

In [46]:   ls2

Out[46]:   []

In [47]:   ls2.insert(2,10)
```

```
In [48]:   ls2
```

```
Out[48]:   [10]
```

```
In [50]:   ls2.index(10)
```

```
Out[50]:   0
```

```
In [51]:   ls1.insert(2,700)
```

```
In [52]:   ls1
```

```
Out[52]:   [100, 200, 700, 900, 500, 800]
```

```
In [53]:   ls2
```

```
Out[53]:   [10]
```

```
In [56]:   ls1.pop(1)
```

```
Out[56]:   200
```

```
In [57]:   ls1.remove(900)
```

```
In [58]:   ls1
```

```
Out[58]:   [100, 700, 500, 800]
```

```
In [59]:   ls2
```

```
Out[59]:   [10]
```

```
In [60]:   ls2.reverse()
```

```
In [61]:   ls2
```

```
Out[61]:   [10]
```

```
In [62]:   ls1.reverse()
```

```
In [63]:   ls1
```

```
Out[63]:   [800, 500, 700, 100]
```

```
In [64]:   ls1.sort()
```

```
In [65]:   ls1
```

```
Out[65]:   [100, 500, 700, 800]
```

```
In [66]:   ls2
```

```
Out[66]:    [10]

In [69]:    ls2.extend(ls1)

In [70]:    ls1

Out[70]:    [100, 500, 700, 800]

In [71]:    ls2

Out[71]:    [10, 100, 500, 700, 800]

In [72]:    ls1.append(ls2)

In [73]:    ls1

Out[73]:    [100, 500, 700, 800, [10, 100, 500, 700, 800]]

In [74]:    ls2

Out[74]:    [10, 100, 500, 700, 800]

In [75]:    ls1[1]

Out[75]:    500

In [76]:    ls1[1]

Out[76]:    500

In [77]:    ls1[0][1]
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[77], line 1
----> 1 ls1[0][1]

TypeError: 'int' object is not subscriptable
```

```
In [78]:    ls1[4]

Out[78]:    [10, 100, 500, 700, 800]

In [80]:    ls1[4][3]

Out[80]:    700

In [81]:    ls1.clear

Out[81]:    <function list.clear()>

In [82]:    ls2.clear
```

```
Out[82]:   <function list.clear()>
```

```
In [83]:   ls1
```

```
Out[83]:   [100, 500, 700, 800, [10, 100, 500, 700, 800]]
```

```
In [84]:   ls2
```

```
Out[84]:   [10, 100, 500, 700, 800]
```

```
In [85]:   print(ls1.clear())
           print(ls2.clear())

           None
           None
```

```
In [86]:   ls1
```

```
Out[86]:   []
```

```
In [87]:   ls2
```

```
Out[87]:   []
```

```
In [88]:   ls1.clear()
```

```
In [89]:   ls2.clear()
```

```
In [90]:   print(ls1)
           print(ls2)

           []
           []
```

```
In [ ]:
```