In [7]:
```python
s = 'HELLO'
min(s)
```

Out[7]: 'E'

In [9]:
```python
max(s)
```

Out[9]: 'O'

8th Nov

python data structure

2 way use can create a empty list

In [18]:
```python
l = []
```

In [25]:
```python
l1 = list()
```

In [27]:
```python
len(l1)
```

Out[27]: 0

In [31]:
```python
l.append(10)
l.append(20)
l.append(30)
```

In [33]:
```python
l
```

Out[33]: [10, 20, 30]

In [35]:
```python
l.append(40)
```

In [37]:
```python
l
```

Out[37]: [10, 20, 30, 40]

In [44]:
```python
l1.append(10)
l1.append('naresh')
l1.append(2+3j)
```

In [46]:
```python
l1
```

Out[46]: [10, 'naresh', (2+3j)]

In [48]:
```python
print(len(l))
```

4

In [50]:
```python
print(len(l1))
```

3

In [54]:
```python
print(id(l))
print(id(l1))
```

2263250405568
2263210189824

- list inside list called nested list

In [59]:
```python
l1.append([2,3,4])
```

In [61]:
```python
l1
```

Out[61]: [10, 'naresh', (2+3j), [2, 3, 4]]

In [63]:
```python
print(type(l))
print(type(l1))
```

<class 'list'>
<class 'list'>

In [65]:
```python
l2 = l1.copy()
```

In [67]:
```python
l2
```

Out[67]: [10, 'naresh', (2+3j), [2, 3, 4]]

In [69]:
```python
print(id(l2))
```

2263250435264

In [71]:
```python
l1 == l2
```

Out[71]: True

In [73]:
```python
l2.clear()
```

In [75]:
```python
l2
```

Out[75]: []

In [77]:
```python
l2 = l1.copy()
```

In [79]:
```python
l3 = l2.copy()
```

In [81]:
```python
l3
```

Out[81]: [10, 'naresh', (2+3j), [2, 3, 4]]

In [83]: `l3.clear()`

In [85]: `l3`

Out[85]: `[]`

In [87]: `del l3`

In [89]: `l3`

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[89], line 1
----> 1 l3

NameError: name 'l3' is not defined
```

In [91]: `l1[:]`

Out[91]: `[10, 'naresh', (2+3j), [2, 3, 4]]`

In [93]: `l1[::-3]`

Out[93]: `[[2, 3, 4], 10]`

In [95]: `l3 = ['red', 'green', 'blue']`

In [97]: `l3`

Out[97]: `['red', 'green', 'blue']`

In [99]: `l3[::-1]`

Out[99]: `['blue', 'green', 'red']`

In [101… `l.count(10)`

Out[101… `1`

In [103… `l1`

Out[103… `[10, 'naresh', (2+3j), [2, 3, 4]]`

In [105… `l1.remove(10)`

In [107… `l1`

Out[107… `['naresh', (2+3j), [2, 3, 4]]`

In [109… `l1.append(20)`

In [111…   ```python
            l1.append(2.4)
            ```

In [115…    ```python
            l1
            ```

Out[115…   ```
            ['naresh', (2+3j), [2, 3, 4], 20, 2.4]
            ```

In [122…    ```python
            l1[-6:-1]
            ```

Out[122…   ```
            ['naresh', (2+3j), [2, 3, 4], 20]
            ```

In [133…    ```python
            l1[0]
            ```

Out[133…   ```
            'naresh'
            ```

In [149…    ```python
            print(l1[0][0])
            print(l1[0][1])
            print(l1[0][2])
            ```

            ```
            n
            a
            r
            ```

In [151…   ```python
            print(l1[0][0])
            print(l1[0][1])
            print(l1[0][2])
            print(l1[0][10])
            ```

            ```
            n
            a
            r
            ```

            ```
            ---------------------------------------------------------------------------
            IndexError                                Traceback (most recent call last)
            Cell In[151], line 4
                  2 print(l1[0][1])
                  3 print(l1[0][2])
            ----> 4 print(l1[0][10])

            IndexError: string index out of range
            ```