# Python Data Structures

## Lists

In [81]:

```
li = [123, 234, 345]

li[0]       # Access an element with index in a list
li          # Access the entire list
li[1:]      # Access all elements from second  to last
li[::-1]    # Access all elements from reverse order
li[::2]     # Accessing even index elements
li[1::2]    # Accessing odd index elements
            # List can be accessed, manipulated index
                # Direct Referncing - [Index]
                # Indirect Referencing - through function
li.pop()    # Remove an element in a list
li.pop(1)

li2 = [786, 143, 9848, 1996,4277, 4437]

li.extend(li2) # Merged to (li & li2) elements
li

sum(li)     # It displays sum of the elements
max(li)     # It Displays the Maximum no from cell
len(li)     # No. of the elements in a cell

li.sort()
li

sum(li)/len(li)    # Average off all list elements

sum(li[1::2])/len(li[1::2])   # Average of alternate numabes

li.sort()
li

li.pop()
max(li)
li
# Function that returns the nth largest

def genericLargest(li, n):
    li.sort()
    return li[-n]

genericLargest(li, 3)


```

Out[81]: 1996

In [80]:
```python
# Find the second largest number from given list

def secondLargest(li):
    li.sort()
    return li[-2]
secondLargest(li)

```

Out[80]: 4277

In [94]:
```python
# Function to search for data in a list
# Search for the key in the list and return the index

def linersearch(li, key):
    for index in range(0, len(li)):
        if li[index] == key:
            return index
    return -1

linersearch(li,427)


```

Out[94]: -1

In [93]:
```python
def linearSearch(li,key):
    if key in li:
        return li.index(key)
    return -1

linearSearch(li, 786)

```

Out[93]: 2

In [126]:
```python
# Count the Chatcters with currect Occurancy

def countCharOccurances(s, c):
    count = 0
    for ch in s:
        if ch == c:
            count +=1
    return count

def countCharOccurances2(s, c):
    return s.count(c)

countCharOccurances2("welcome to python trining programmmme", 'mm')

```

Out[126]: 2

# Task

In [132]:

```
s = "1 2 3 4 5 6 7 8"
li = s.split()
numberlist = []
for i in li:
    numberlist.append(int(i))
numberlist
```

Out[132]:

```
[1, 2, 3, 4, 5, 6, 7, 8]
```