In [8]:

```python
a=10
b=21
c=a+b
#the sum of 10 and 20 is 30
print("sum of"+str(a)+"and"+str(b)+"is"+str(c))
print("The sum of ", a," and ", b, " is ", c)
```

```
sum of10and21is31
The sum of  10  and  21  is  31
```

In [3]:

```python
print("the sum of {} and {} is {}".format(a,b,c))
```

```
the sum of 10 and 20 is 30
```

In [4]:

```python
print("the sum of {0} and {1} is {2}".format(a,b,c))
```

```
the sum of 10 and 20 is 30
```

In [5]:

```python
print("the sum of {2} and {0} is {1}".format(a,b,c))
```

```
the sum of 30 and 10 is 20
```

In [6]:

```python
print("the sum of {0} and {1} is {0}".format(a,b,c))
```

```
the sum of 10 and 20 is 10
```

In [7]:

```python
print("the sum of {} and {} is {}".format(b,a,c))
```

```
the sum of 20 and 10 is 30
```

In [9]:

```python
print("the sum of {} and {} is {}".format(a,b,c))
```

```
the sum of 10 and 21 is 31
```

In [12]:

```python
s="avinash"
print(s.replace('a','@'))
```

@vin@sh

In [14]:

```python
#split
a="goole.com"
a.split('.')
```

Out[14]:

```
['goole', 'com']
```

In [17]:

```python
a="go#g#le"
a.split('#')
```

Out[17]:

```
['go', 'g', 'le']
```

In [18]:

```python
for a in range(0,5):
    print(int(input("enter a numbers")))
```

```
enter a numbers2
2
enter a numbers3
3
enter a numbers56
56
enter a numbers67
67
enter a numbers89
89
```

In [20]:

```python
# 12 13
#25
a=input().split()
print(type(a))
a
```

```
12 34
<class 'list'>
```

Out[20]:

```
['12', '34']
```

In [22]:

```python
for i in a:
    print(int(i))
```

```
12
34
```

In [ ]:

```python
# i/p:
# 12,13,14
a=input().split(',')
print(type(a))
```

In [ ]:

```python
# i/p:
# 12,13,14
a=input().split(',')
print(type(a))
```

In [ ]:

```
12 13 14
```

In [ ]:

```python
# i/p:
# 12,13,14
a=input().split(',')
print(type(a))
```

Data structure

python collections (ARRAYS)

there are 4 types collectoin types in the python programing language

list

Truple

set

dictionary

```
list in a collection which is ordered and changeable allows duplicate members
```

In [11]:

```
m=list(1,2,3,4,5)
type(m)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-11-41baf4f28764> in <module>
----> 1 m=list(1,2,3,4,5)
      2 type(m)

TypeError: list expected at most 1 arguments, got 5
```

In [5]:

```
l=[]
type(l)
```

Out[5]:

```
list
```

In [8]:

```
m=list()
type(m)
```

Out[8]:

```
list
```

In [12]:

```
l=[1,2,3,4,5]
```

In [15]:

```
l[1:]
```

Out[15]:

```
[2, 3, 4, 5]
```

In [18]:

```python
print(dir(l))
```

```
['__add__', '__class__', '__contains__', '__delattr__', '__delitem__', '__di
r__', '__doc__', '__eq__', '__format__', '__ge__', '__getattribute__', '__ge
titem__', '__gt__', '__hash__', '__iadd__', '__imul__', '__init__', '__init_
subclass__', '__iter__', '__le__', '__len__', '__lt__', '__mul__', '__ne__',
'__new__', '__reduce__', '__reduce_ex__', '__repr__', '__reversed__', '__rmu
l__', '__setattr__', '__setitem__', '__sizeof__', '__str__', '__subclasshook
__', 'append', 'clear', 'copy', 'count', 'extend', 'index', 'insert', 'pop',
'remove', 'reverse', 'sort']
```

In [19]:

```python
dir(l)
```

Out[19]:

```
['__add__',
 '__class__',
 '__contains__',
 '__delattr__',
 '__delitem__',
 '__dir__',
 '__doc__',
 '__eq__',
 '__format__',
 '__ge__',
 '__getattribute__',
 '__getitem__',
 '__gt__',
 '__hash__',
 '__iadd__',
 '__imul__',
 '__init__',
 '__init_subclass__',
 '__iter__',
 '__le__',
 '__len__',
 '__lt__',
 '__mul__',
 '__ne__',
 '__new__',
 '__reduce__',
 '__reduce_ex__',
 '__repr__',
 '__reversed__',
 '__rmul__',
 '__setattr__',
 '__setitem__',
 '__sizeof__',
 '__str__',
 '__subclasshook__',
 'append',
 'clear',
 'copy',
 'count',
 'extend',
 'index',
 'insert',
 'pop',
 'remove',
 'reverse',
 'sort']
```

In [20]:

```python
print(dir(l))
```

```
['__add__', '__class__', '__contains__', '__delattr__', '__delitem__', '__di
r__', '__doc__', '__eq__', '__format__', '__ge__', '__getattribute__', '__ge
titem__', '__gt__', '__hash__', '__iadd__', '__imul__', '__init__', '__init_
subclass__', '__iter__', '__le__', '__len__', '__lt__', '__mul__', '__ne__',
'__new__', '__reduce__', '__reduce_ex__', '__repr__', '__reversed__', '__rmu
l__', '__setattr__', '__setitem__', '__sizeof__', '__str__', '__subclasshook
__', 'append', 'clear', 'copy', 'count', 'extend', 'index', 'insert', 'pop',
'remove', 'reverse', 'sort']
```

In [22]:

```python
l=[1,2,3,4]
append.add[6]
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-22-5b916911075f> in <module>
      1 l=[1,2,3,4]
----> 2 append.add[6]

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

In [23]:

```python
l=[]
l
```

Out[23]:

```
[]
```

In [27]:

```python
l.append(9)
l
```

Out[27]:

```
[[...], 1, 2, 9]
```

In [30]:

```python
l.append(3)
```

In [31]:

```python
l.insert(1,6)
```

In [32]:

```
l
```

Out[32]:

```
[[...], 6, 1, 2, 9, 3, 3, 3]
```

In [33]:

```
l.insert(2,7)
l
```

Out[33]:

```
[[...], 6, 7, 1, 2, 9, 3, 3, 3]
```

In [35]:

```
l2=[5,4,7]
l.extend(l2)
l
```

Out[35]:

```
[[...], 6, 7, 1, 2, 9, 3, 3, 3, 5, 4, 7]
```

In [36]:

```
l.extend([22,34,44])
l
```

Out[36]:

```
[[...], 6, 7, 1, 2, 9, 3, 3, 3, 5, 4, 7, 22, 34, 44]
```

In [37]:

```
l[0]=2
l
```

Out[37]:

```
[2, 6, 7, 1, 2, 9, 3, 3, 3, 5, 4, 7, 22, 34, 44]
```

In [39]:

```
l=["avinash","mvgr","python"]
l
```

Out[39]:

```
['avinash', 'mvgr', 'python']
```

In [42]:

```
l.insert(1,"ram")
l
```

Out[42]:

```
['avinash', 'ram', 'mvgr', 'python']
```

In [46]:

```
l.extend(["avi"])
l
```

Out[46]:

```
['avinash', 'ram', 'mvgr', 'python', 'avi']
```

In [47]:

```
l.append("amma")
l
```

Out[47]:

```
['avinash', 'ram', 'mvgr', 'python', 'avi', 'amma']
```

In [49]:

```
l[0]
```

Out[49]:

```
'avinash'
```

In [50]:

```
l=[1,2,3,'r',"avinash"]
```

In [51]:

```
l
```

Out[51]:

```
[1, 2, 3, 'r', 'avinash']
```

In [52]:

```
l[0]=3
```

In [53]:

```
l
```

Out[53]:

```
[3, 2, 3, 'r', 'avinash']
```

In [54]:

```
l.insert(0,4)
```

In [55]:

```
l
```

Out[55]:

```
[4, 3, 2, 3, 'r', 'avinash']
```

In [56]:

```
l=[8,9,20]
l
```

Out[56]:

```
[8, 9, 20]
```

In [57]:

```
l.insert(0,6)
```

In [58]:

```
l
```

Out[58]:

```
[6, 8, 9, 20]
```

In [59]:

```
l.remove(20)
```

In [60]:

```
l
```

Out[60]:

```
[6, 8, 9]
```

In [61]:

```python
l.pop()
```

Out[61]:

9

In [62]:

```python
l
```

Out[62]:

[6, 8]

In [63]:

```python
l.pop(1)
l
```

Out[63]:

[6]

In [65]:

```python
del l[0]
```

In [66]:

```python
l
```

Out[66]:

[]

In [67]:

```python
l=["avinash","ramu"]
l.append("sai")
l
```

Out[67]:

['avinash', 'ramu', 'sai']

In [68]:

```python
l.pop()
```

Out[68]:

'sai'

In [71]:

```
-------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-71-78d98a24cd45> in <module>
      1 l=[1,2,3,4,5]
----> 2 l.extend[9]
      3 l

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

In [72]:

```
l.pop()
```

Out[72]:

```
5
```

In [73]:

```
l.clear()
```

In [74]:

```
l
```

Out[74]:

```
[]
```

In [76]:

```
l=["avinash","sai"]
l.append("ramu")
```

In [77]:

```
l
```

Out[77]:

```
['avinash', 'sai', 'ramu']
```

In [78]:

```
l.clear()
```

In [79]:

```
l
```

Out[79]:

```
[]
```

In [80]:

```
l=[1,2,3,4]
del l[1:]
l
```

Out[80]:

```
[1]
```

In [81]:

```
l
```

Out[81]:

```
[1]
```

In [84]:

```
l=[1,2,3,4,1]
l.count(1)
```

Out[84]:

```
2
```

In [85]:

```
l.index(2)
```

Out[85]:

```
1
```

In [86]:

```
l.sort()
```

In [87]:

```
l
```

Out[87]:

```
[1, 1, 2, 3, 4]
```

In [88]:

```
l.reverse()
```

In [89]:

```
l
```

Out[89]:

```
[4, 3, 2, 1, 1]
```

In [90]:

```
help.sort()
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
<ipython-input-90-918672e71fca> in <module>
----> 1 help.sort()

AttributeError: '_Helper' object has no attribute 'sort'
```

In [91]:

```
l=[3,4,5,6,7,8,9]
l.sort()
```

In [92]:

```
l
```

Out[92]:

```
[3, 4, 5, 6, 7, 8, 9]
```

In [93]:

```
min(l)
```

Out[93]:

```
3
```

In [94]:

```
max(l)
```

Out[94]:

```
9
```

In [95]:

```
len(l)
```

Out[95]:

7

In [96]:

```
sum(l)
```

Out[96]:

42

In [102]:

```
a=[1,2,3,4,5,6]
b=[]
for i in a:
    if(i%2==0):
        b.append(a)
print(b)
```

[[1, 2, 3, 4, 5, 6], [1, 2, 3, 4, 5, 6], [1, 2, 3, 4, 5, 6]]

In [103]:

```
l=[1,2,3,4,5,5,2,3,1]
```

In [104]:

```
m=[]
for i in l:
    if i not in m:
        m.append(i)
```

In [105]:

```
m
```

Out[105]:

[1, 2, 3, 4, 5]

In [106]:

```
s="1 2 3 4 5 6"
```

In [107]:

```
li=s.split()
l=[]
for i in li:
    l.append(int(i))
l
```

Out[107]:

[1, 2, 3, 4, 5, 6]

In [1]:

```
l=[1,4,5,6,7]
first=None
second=None
for i in l:
        if i>first and first!=second:
          second=first
          first=i
    elif i>second:
        second=i
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-1-0619dbde2255> in <module>
      3 second=None
      4 for i in l:
----> 5     if i>first and first!=second:
      6         second=first
      7         first=i

TypeError: '>' not supported between instances of 'int' and 'NoneType'
```

In [ ]: