Recursion

- The function call by it self.

In [ ]:
```
def fact(n):
    if n==0 or n==1:
        return 1
    else:
        return n*fact(n-1)
```

In [ ]:
```
n=int(input())
fact(n)
```

Files

- File operations:
  - open(), with open()
  - read()
  - readline()
  - readlines()
  - write()
  - close()
- Modes in files:
  - w => writing
  - r => reading
  - a => Appending
  - x => Creating a file

In [ ]:
```
open("sample.txt","x")
```

In [ ]:
```
f=open("sample.txt","w")
f.write("Good morning everyone!")
f.close()
```

In [1]:
```
f=open("sample.txt","w")
f.write("Good afternoon in advance!")
f.close()
```

In [3]:
```
f=open("sample.txt","a")
f.write("\n")
f.write("Good morning everyone!")

f.close()
```

In [11]:
```
with open("sample.txt","r") as f:
    data=f.readlines()
    print(type(data))
```

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

In [16]:
```
open("1.txt","x")
```

```
---------------------------------------------------------------------------
FileExistsError                           Traceback (most recent call last)
<ipython-input-16-037d2fae834a> in <module>
----> 1 open("1.txt","x")

FileExistsError: [Errno 17] File exists: '1.txt'
```

In [19]:
```
f=open("1.txt","a")
f.write("Good evening !")
f.write("\n")
f.close()
```

In [28]:
```
nl,nw,nc=0,0,0
f=open("1.txt","r")
for i in f:
    nl+=1
    l=i.split(" ")
    nw+=len(l)
    nc+=len(i)
print(nl,nw,nc)
```

```
4 10 49
```

In [37]:

```
import random
for i in range(50):
    print(str(random.randint(0,100)))
```

```
43
9
72
52
21
87
81
78
81
83
7
97
60
56
39
22
98
80
61
23
27
74
58
25
39
19
3
100
65
14
15
39
36
18
5
82
64
57
41
58
99
8
17
68
6
4
98
65
100
97
```

In [38]:
```
open("marks.txt","x")
```

Out[38]:
```
<_io.TextIOWrapper name='marks.txt' mode='x' encoding='cp1252'>
```

In [39]:
```
import random
f=open("marks.txt","a")
for i in range(50):
    f.write(str(random.randint(0,100)))
    f.write("\n")
f.close()
```

In [40]:
```
with open("marks.txt","r") as f:
    p=fl=0
    for i in f:
        if(int(i)>=35):
            p+=1
        else:
            fl+=1
    print((p*100/50), (fl*100/50))
```

```
56.0 44.0
```

anonymous fumctions

- list comprehension
- lambda
- map
- iterator
- filters

In [41]:
```
n = int(input())
for i in range(n):
    print(i,end = ' ')
```

```
10
0 1 2 3 4 5 6 7 8 9
```

In [42]:
```
li = [i for i in range(10)]
```

In [43]:
```
li
```

Out[43]:
```
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

In [49]:
```
l = '1 2 3 4 5'
```

In [50]:
```
l=l.split()
l
```

Out[50]:
```
['1', '2', '3', '4', '5']
```

In [51]:
```
li = []
for i in l:
    li.append(int(i))
print(li)
```

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

In [52]:
```
l1 = [i**2 for i in range(20)]
```

In [53]:
```
l1
```

```
...
```

In [54]:
```
def sqr(n):
    return n**2
```

In [55]:
```
sqr(10)
```

Out[55]:
```
100
```

In [56]:
```
s = '1 3 5 6'
```

In [65]:
```
list(map(int,s.split()))
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
<ipython-input-65-79694af025bd> in <module>
----> 1 list(map(int,s.split()))

AttributeError: 'list' object has no attribute 'split'
```

In [73]:
```
l = lambda a:a%2
```

In [74]:
```
li=[1,2,3,4,5]
list(map(l,li))
```

Out[74]:
```
[1, 0, 1, 0, 1]
```

In [79]:
```
s = 'abcd'
```

In [76]:
```
for i in s:
    print(i)
```

```
a
b
c
d
```

In [80]:
```
k = iter(s)
```

In [81]:
```
k.__next__()
```

Out[81]: 'a'

In [83]:
```
k.__next__()
```

Out[83]: 'c'

In [84]:
```
def is_even(n):
    if n%2 == 0:
        return True
    else:
        return False
```

In [85]:
```
is_even(10)
```

Out[85]: True

In [88]:
```
f = filter(is_even,[1,2,3,4,5,6])
list(f)
```

Out[88]: [2, 4, 6]

Task - 1

In [89]:
```
def files(file):
    with open(file,'w') as f:
        n = input("Enter Some Text here: ")
        f.write(n)
        f.write("\n")
    return
```

In [90]:
```
filepath = "DataFile/sample.txt"
files(filepath)
```

```
Enter Some Text here: Hi Good Afternoon to All
```

In [ ]:
```

```