In [ ]:
```
1
```

In [1]:
```
#Task for Email id validation
#     muni.apssdc@gmail.com
#     muneiah.t@apssdc.in
#     example123@gmail.com
#     student@ksrm.org
#     student@rguktrkv.ac.in
#     example@yahoo.com
#     example@hotmail.com
#     muneiah@outlook.com

```

In [3]:
```
import re
mail = input("Enter A mail id")
p ='^[a-zA-Z0-9][a-zA-Z0-9._]{5,18}[@][a-z]{4,8}[.][a-z]{2,5}$|^[a-zA-Z0-9][
if re.match(p,mail):
    print("Valid mail id")
else:
    print("Not valid")
```

```
Enter A mail idhai@gmail.com
Not valid
```

Today's Objective :

Packages And modules

File Handling

File Data Processing

Sets

Set Methods

Functional Programming

List Comprehension

Iterators

Generators

In [ ]:
```
## Packages And modules

Module :Set of Statements
Packages:Set of modules
```

In [5]:
```
import math

print(dir(math))
```

```
['__doc__', '__loader__', '__name__', '__package__', '__spec__', 'acos', 'acos
h', 'asin', 'asinh', 'atan', 'atan2', 'atanh', 'ceil', 'copysign', 'cos', 'cos
h', 'degrees', 'e', 'erf', 'erfc', 'exp', 'expm1', 'fabs', 'factorial', 'floo
r', 'fmod', 'frexp', 'fsum', 'gamma', 'gcd', 'hypot', 'inf', 'isclose', 'isfini
te', 'isinf', 'isnan', 'ldexp', 'lgamma', 'log', 'log10', 'log1p', 'log2', 'mod
f', 'nan', 'pi', 'pow', 'radians', 'remainder', 'sin', 'sinh', 'sqrt', 'tan',
'tanh', 'tau', 'trunc']
```

In [7]:
```
5//2
```

Out[7]: 2

In [8]:
```
math.ceil(5/2)
```

Out[8]: 3

In [9]:
```
import random
```

In [10]:
```
print(dir(random))
```

```
['BPF', 'LOG4', 'NV_MAGICCONST', 'RECIP_BPF', 'Random', 'SG_MAGICCONST', 'Syste
mRandom', 'TWOPI', '_BuiltinMethodType', '_MethodType', '_Sequence', '_Set', '_
_all__', '__builtins__', '__cached__', '__doc__', '__file__', '__loader__', '__
name__', '__package__', '__spec__', '_acos', '_bisect', '_ceil', '_cos', '_e',
'_exp', '_inst', '_itertools', '_log', '_os', '_pi', '_random', '_sha512', '_si
n', '_sqrt', '_test', '_test_generator', '_urandom', '_warn', 'betavariate', 'c
hoice', 'choices', 'expovariate', 'gammavariate', 'gauss', 'getrandbits', 'gets
tate', 'lognormvariate', 'normalvariate', 'paretovariate', 'randint', 'random',
'randrange', 'sample', 'seed', 'setstate', 'shuffle', 'triangular', 'uniform',
'vonmisesvariate', 'weibullvariate']
```

In [15]:
```
r=random.randint(1,10)
r
```

Out[15]: 10

In [92]:
```
for i in range(1,11):
    print(random.randint(1,100),end=" ")
```

```
66 40 96 52 34 40 21 62 31 43
```

In [20]:
```
import keyword
```

In [21]:
```
print(keyword.kwlist)
```

```
['False', 'None', 'True', 'and', 'as', 'assert', 'async', 'await', 'break', 'cl
ass', 'continue', 'def', 'del', 'elif', 'else', 'except', 'finally', 'for', 'fr
om', 'global', 'if', 'import', 'in', 'is', 'lambda', 'nonlocal', 'not', 'or',
'pass', 'raise', 'return', 'try', 'while', 'with', 'yield']
```

In [22]:
```
#is odd
#is prime
#is even
```

In [27]:
```
import mypackage

mypackage.isOdd(23)
```

Out[27]:
```
True
```

In [28]:
```
print(dir(mypackage))
```

```
['__builtins__', '__cached__', '__doc__', '__file__', '__loader__', '__name__',
'__package__', '__spec__', 'isOdd']
```

In [31]:
```
for i in range(1,101):
    if mypackage.isOdd(i):
        print(i,end=" ")
```

```
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55
57 59 61 63 65 67 69 71 73 75 77 79 81 83 85 87 89 91 93 95 97 99
```

File Handling

- File is an Package
  - We can store the data as permanet base
  - For Suppose we have Diffarent file Extensions
    - .txt,.pdf,.doc,.ecel,.csv,.exe,.jpg,.png...etc
  - we need to use some modes for handle the data
    - read()-->'r'
    - append()-->'a'
    - write()--->'w
    - create()-->'x
  - We need to open file and close file by using open() and close()
  - with open()--> jupyter Notes

File Data Processing

- file data read,write,remove..
  - open()
  - with open(filepath,'modename')

In [32]:
```
file_path='myfile.txt'
```

In [34]:
```
#open  the file
with open(file_path,'r') as f:
    #read the data
    file_data=f.read()
    print(file_data)
```

```
pubg
winner winner muddapapu dinner
apex
candycursh
freefire
bubble shooter
coin master
bowling
super mario
ludo
```

In [35]:
```
#open  the file
with open(file_path,'w') as f:
    #write the data to file
    fw=f.write('apssdc cbit vbit')#it will override the prioues data
    print(fw)
```

```
16
```

In [36]:
```
#append()
with open(file_path,'a') as f:
    myfileDataAppend=f.write("\npubg\nwinner winner muddapapu dinner\napex\n
    print(myfileDataAppend)
```

```
113
```

In [43]:
```
#Count the all lines which present in the file
with open(file_path,'r') as f:
    line_count=f.readlines()
    print(line_count)
    print(type(line_count))
    print('the total lines is :',len(line_count))
```

```
['apssdc cbit vbit\n', 'pubg\n', 'winner winner muddapapu dinner\n', 'apex\n',
'candycursh\n', 'freefire\n', 'bubble shooter\n', 'coin master\n', 'bowling\n',
'super mario\n', 'ludo']
<class 'list'>
the total lines is : 11
```

In [45]:
```
with open(file_path,'r') as f:
    line_count=f.read(20)
    print(line_count)
```

```
apssdc cbit vbit
pub
```

In [59]:
```
#Words count
with open(file_path,'r') as f:
    lines=f.read()
    linesCount=lines.split()
    c=0
    for i in linesCount:
        c=c+1
        print(i)
    print("words Count is :",c)
```

```
apssdc
cbit
vbit
pubg
winner
winner
muddapapu
dinner
words Count is : 8
```

In [58]:
```
s='hello'
#join()
s=" ".join(s)
print(s)
print(s.split())
len(s.split())
```

```
h e l l o
['h', 'e', 'l', 'l', 'o']
```

Out[58]:
```
5
```

In [62]:
```
#Read the count of small letter,Cap letters,Specil Char,And digits
with open ("myfile.txt","r") as f:
    c = 0
    for i in f.read():
        if i.islower():
            c += 1
    print("Small letters Count :",c)
```

```
Small letters Count : 45
```

In [63]:
```
# sub1  sub2  sub3  sub4
#   33    44    98    88
#   44    55    43    77
#   98    78    35    89
```

In [68]:
```
m=open("marks.txt","w")
for i in range(3):
    inp = input("EntER DATA")
    m.write("\t"+inp)
m.close()
```

```
EntER DATAHai
EntER DATAHello
EntER DATAcbit
```

In [72]:
```
m=open("marks.txt","w")
m.write("sub1\tsub2\tsub3\tsub4")
for i in range(3):
    sub1 = input("Enter Subject1 marks")
    sub2 = input("Enter Subject2 marks")
    sub3 = input("Enter Subject3 marks")
    sub4 = input("Enter Subject4 marks")
    m.write("\n"+sub1+"\t"+sub2+"\t"+sub3+"\t"+sub4)
m.close()
```

```
Enter Subject1 marks54
Enter Subject2 marks99
Enter Subject3 marks74
Enter Subject4 marks83
Enter Subject1 marks69
Enter Subject2 marks95
Enter Subject3 marks85
Enter Subject4 marks83
Enter Subject1 marks73
Enter Subject2 marks43
Enter Subject3 marks93
Enter Subject4 marks59
```

In [73]:
```
f = open('marks.txt','r')
print(f.read())
```

```
sub1    sub2    sub3    sub4
54      99      74      83
69      95      85      83
73      43      93      59
```

In [75]:
```
f = open('marks.txt','r')
print(f.readline())
```

```
sub1    sub2    sub3    sub4
```

In [76]:
```
1 f = open('marks.txt','r')
2 print(f.readlines())
```

```
['sub1\tsub2\tsub3\tsub4\n', '54\t99\t74\t83\n', '69\t95\t85\t83\n', '73\t43\t9
3\t59']
```

In [90]:
```
1 f = open('marks.txt','r')
2 for i in f.readlines():
3     s = 0
4     for j in i.split():
5         if j.isdigit():
6             s += int(j)
7     print(s)
```

```
0
310
332
268
```

In [98]:
```
1 import random
2 f = open("tmm.txt","w")
3 for i in range(1000):
4     r = random.randint(0,100)
5     f.write(str(r)+"\n")
6 f.close()
```

In [99]:
```
1 # 100 to 85 between A gread
2 # 84 to 75 between b gread
3 # 75 to 60 between c gread
4 # 59 to 35 between d gread
5 # 35 bellow
6
```

In [107]:
```
f = open("tmm.txt","r")
ga = gb = gc = gd = gf = 0
for i in f.read().split():
    if int(i)>85:
        ga += 1
    elif int(i)>75:
        gb += 1
    elif int(i)>60:
        gc += 1
    elif int(i)>35:
        gd += 1
    else:
        gf += 1


print("Gread A:",ga,"\nGread B:",gb,"\nGread C:",gc,"\nGread D:",gd,"\nFiel

```

```
Gread A: 149
Gread B: 94
Gread C: 162
Gread D: 217
Fiel : 378
```

List Comprehension

In [111]:
```
l = []
for i in range(1,11):
    l.append(i)
print(l)
```

```
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```

In [113]:
```
# By using List Comprehension

#L1 = [Expriton for i in range() conditon]
l1 = [num for num in range(1,11)]
print(l1)
```

```
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```

In [114]:
```
l1 = [num for num in range(1,11) if num%2==0]
print(l1)
```

```
[2, 4, 6, 8, 10]
```

In [115]:
```
# input = "python"
# output = ['p','y','t','h','o','n']
```

In [116]:
```
inp = "python"
l2 = []
for i in inp:
    l2.append(i)

print(l2)
```

```
['p', 'y', 't', 'h', 'o', 'n']
```

In [118]:
```
l3 = [i for i in "python"]
print(l3)
```

```
['p', 'y', 't', 'h', 'o', 'n']
```

In [121]:
```
st = "dheeraja"
c = 0
c1 = 0
for i in st:
    if i == "a" or i=="e" or i=="i" or i=="o"or i=="u":
        c += 1
    else:
        c1 += 1
print("Ov :",c)
print("Con :",c1)
```

```
Ov : 4
Con : 4
```

In [126]:
```
st = "dheeraja"
c = 0
c1 = 0
for i in st:
    if i in ["a","e","i","o","u"]:
         c += 1
    else:
        c1 += 1
print("Ov :",c)
print("Con :",c1)
```

```
Ov : 4
Con : 4
```

In [125]:
```
"a" in ["a","e","i","o","u"]
```

Out[125]:
```
True
```

In [127]:
```
mp = list(map(int,input().split()))

```

```
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
```

In [128]:
```
1 sum(mp)
```

Out[128]: 210

In [129]:
```
1 l4 = sum([num for num in range(1,100)])
2 l4
```

Out[129]: 4950

In [ ]:
```
1
```