Assignment 2

In [1]:
```
#Q1
for x in range(0, 4):
    print ("Hello world")
```

```
Hello world
Hello world
Hello world
Hello world
```

In [2]:
```
#Q2 was incomplete
```

In [3]:
```
#Q3
l=[1,2,3,4,5,2,3,4,7,9,5]
l1=[]
l2=[]
for i in l:
    if i not in l1:
        l1.append(i)
    else:
        l2.append(i)
print(l2)
```

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

In [4]:
```
#Q4
def group(x,l):
        gl=[]
        g=[]
        i=0
        while i<len(x):
                if(len(gl)<l):
                        gl.append(x[i])
                        i=i+1
                else:
                        g.append(gl)
                        gl=[]
        g.append(gl)
        return g
print (group([1,3,2,2,9,7,2,4],3))
```

```
[[1, 3, 2], [2, 9, 7], [2, 4]]
```

In [5]:
```
#Q5
xs = ['dddd','a','bb','ccc']
print (xs)
xs.sort(key=lambda s: len(s))
print (xs)
```

```
['dddd', 'a', 'bb', 'ccc']
['a', 'bb', 'ccc', 'dddd']
```

In [6]:
```
#Q6
import os

def extsort(files):
    return sorted(files,key=lambda x: os.path.splitext(x)[1])
print (extsort(['a.c', 'a.py', 'b.py', 'bar.txt', 'foo.txt', 'x.c']) )
```

```
['a.c', 'x.c', 'a.py', 'b.py', 'bar.txt', 'foo.txt']
```

In [7]:
```
#Q7
```

```
# read the entire file as one string
myfile = open('file.txt')
data = myfile.read()
print(data)
myfile.close()

myfile = open('file.txt')
myline = myfile.readline()
while myline:
    print(myline)
    myline = myfile.readline()
myfile.close()
# process the lines


with open('filename.txt' , 'wt') as f:
    f.write ('hi there, this is a first line of file.\n')
    f.write ('and another line.\n')

f = open("filename.txt", "a")
f.writelines(["See you soon!", "Over and out."])
f.close()
```

```
helloLorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula
eget dolor.

Aenean massa. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur
ridiculus mus.

Donec quam felis, ultricies nec, pellentesque eu, pretium quis, sem. Nulla consequat
massa quis enim.

Donec pede justo, fringilla vel, aliquet nec, vulputate eget, arcu.

In enim justo, rhoncus ut, imperdiet a, venenatis vitae, justo. Nullam dictum felis
eu pede mollis pretium.

Integer tincidunt. Cras dapibus. Vivamus elementum semper nisi. Aenean vulputate ele
ifend tellus.

Aenean leo ligula, porttitor eu, consequat vitae, eleifend ac, enim.

Aliquam lorem ante, dapibus in, viverra quis, feugiat a, tellus. Phasellus viverra n
ulla ut metus varius laoreet.

Quisque rutrum. Aenean imperdiet. Etiam ultricies nisi vel augue. Curabitur ullamcor
per ultricies nisi.

Nam eget dui. Etiam rhoncus.

Maecenas tempus, tellus eget condimentum rhoncus, sem quam semper libero, sit amet a
dipiscing sem neque sed ipsum.

Nam quam nunc, blandit vel, luctus pulvinar, hendrerit id, lorem. Maecenas nec odio
et ante tincidunt tempus. Donec vitae sapien ut libero venenatis faucibus.

Nullam quis ante. Etiam sit amet orci eget eros faucibus tincidunt. Duis leo. Sed fr
ingilla mauris sit amet nibh. Donec sodales sagittis magna. Sed consequat, leo eget
bibendum sodales, augue velit cursus nunc,
helloLorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula
eget dolor.



Aenean massa. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur
ridiculus mus.
```

Donec quam felis, ultricies nec, pellentesque eu, pretium quis, sem. Nulla consequat massa quis enim.

Donec pede justo, fringilla vel, aliquet nec, vulputate eget, arcu.

In enim justo, rhoncus ut, imperdiet a, venenatis vitae, justo. Nullam dictum felis eu pede mollis pretium.

Integer tincidunt. Cras dapibus. Vivamus elementum semper nisi. Aenean vulputate ele ifend tellus.

Aenean leo ligula, porttitor eu, consequat vitae, eleifend ac, enim.

Aliquam lorem ante, dapibus in, viverra quis, feugiat a, tellus. Phasellus viverra n ulla ut metus varius laoreet.

Quisque rutrum. Aenean imperdiet. Etiam ultricies nisi vel augue. Curabitur ullamcor per ultricies nisi.

Nam eget dui. Etiam rhoncus.

Maecenas tempus, tellus eget condimentum rhoncus, sem quam semper libero, sit amet a dipiscing sem neque sed ipsum.

Nam quam nunc, blandit vel, luctus pulvinar, hendrerit id, lorem. Maecenas nec odio et ante tincidunt tempus. Donec vitae sapien ut libero venenatis faucibus.

Nullam quis ante. Etiam sit amet orci eget eros faucibus tincidunt. Duis leo. Sed fr ingilla mauris sit amet nibh. Donec sodales sagittis magna. Sed consequat, leo eget bibendum sodales, augue velit cursus nunc,

In [8]:
```
#Q8
file = open("file.txt", "r")

number_of_lines = 0
number_of_words = 0
number_of_characters = 0
for line in file:
  line = line.strip("\n")
  words = line.split()
  number_of_lines += 1
  number_of_words += len(words)
  number_of_characters += len(line)

file.close()

print("lines:", number_of_lines, "words:", number_of_words, "characters:", number_of
```

```
lines: 25 words: 200 characters: 1361
```

In [9]:
```
#Q9
ofile=open("file.txt","r")
k=ofile.readlines()
t=reversed(k)
for i in t:
    print(i.rstrip())
```

```
Nullam quis ante. Etiam sit amet orci eget eros faucibus tincidunt. Duis leo. Sed fr
ingilla mauris sit amet nibh. Donec sodales sagittis magna. Sed consequat, leo eget
bibendum sodales, augue velit cursus nunc,

Nam quam nunc, blandit vel, luctus pulvinar, hendrerit id, lorem. Maecenas nec odio
et ante tincidunt tempus. Donec vitae sapien ut libero venenatis faucibus.

Maecenas tempus, tellus eget condimentum rhoncus, sem quam semper libero, sit amet a
dipiscing sem neque sed ipsum.

Nam eget dui. Etiam rhoncus.

Quisque rutrum. Aenean imperdiet. Etiam ultricies nisi vel augue. Curabitur ullamcor
per ultricies nisi.

Aliquam lorem ante, dapibus in, viverra quis, feugiat a, tellus. Phasellus viverra n
ulla ut metus varius laoreet.

Aenean leo ligula, porttitor eu, consequat vitae, eleifend ac, enim.

Integer tincidunt. Cras dapibus. Vivamus elementum semper nisi. Aenean vulputate ele
ifend tellus.

In enim justo, rhoncus ut, imperdiet a, venenatis vitae, justo. Nullam dictum felis
eu pede mollis pretium.

Donec pede justo, fringilla vel, aliquet nec, vulputate eget, arcu.

Donec quam felis, ultricies nec, pellentesque eu, pretium quis, sem. Nulla consequat
massa quis enim.

Aenean massa. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur
ridiculus mus.

helloLorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula
eget dolor.
```

In [10]:
```
#Q10

ofile=open("file.txt","r")
k=ofile.readlines()
for i in k:
    print(i[::-1])
```

```
.rolod tege alugil odommoc naeneA .tile gnicsipida reutetcesnoc ,tema tis rolod musp
i meroLolleh



.sum sulucidir rutecsan ,setnom tneirutrap sid singam te subitanep euqotan siicos mu
C .assam naeneA



.mine siuq assam tauqesnoc alluN .mes ,siuq muiterp ,ue euqsetnellep ,cen seicirtlu
,silef mauq cenoD



.ucra ,tege etatupluv ,cen teuqila ,lev allignirf ,otsuj edep cenoD
```

```
.muiterp sillom edep ue silef mutcid malluN .otsuj ,eativ sitanenev ,a teidrepmi ,tu
sucnohr ,otsuj mine nI


.sullet dnefiele etatupluv naeneA .isin repmes mutnemele sumaviV .subipad sarC .tnud
icnit regetnI


.mine ,ca dnefiele ,eativ tauqesnoc ,ue rotittrop ,alugil oel naeneA


.teeroal suirav sutem tu allun arreviv sullesahP .sullet ,a taiguef ,siuq arreviv ,n
i subipad ,etna merol mauqilA


.isin seicirtlu reprocmallu rutibaruC .eugua lev isin seicirtlu maitE .teidrepmi nae
neA .murtur euqsiuQ


.sucnohr maitE .iud tege maN


.muspi des euqen mes gnicsipida tema tis ,orebil repmes mauq mes ,sucnohr mutnemidno
c tege sullet ,supmet saneceaM


.subicuaf sitanenev orebil tu neipas eativ cenoD .supmet tnudicnit etna te oido cen
saneceaM .merol ,di tirerdneh ,ranivlup sutcul ,lev tidnalb ,cnun mauq maN


,cnun susruc tilev eugua ,selados mudnebib tege oel ,tauqesnoc deS .angam sittigas s
elados cenoD .hbin tema tis siruam allignirf deS .oel siuD .tnudicnit subicuaf sore
tege icro tema tis maitE .etna siuq malluN
```

In [11]:

```
#Q11
def wrap(filename,width):
 k = width
 f=open(filename).readlines()
 for i in f:
  new=i
  while len(new)>k:
    print (new[:k])
    new=new[k:]
  print (new)
import sys
wrap("filename.txt",20)
```

```
hi there, this is a
first line of file.

and another line.

See you soon!Over an
d out.
```

In [12]:

```
#Q12
def num (n) :
    return n * 2
```

```
old=[1,2,3,4,5,6,7,8,9,10]
new = [num(x) for x in old]
print(list(new))
```

```
[2, 4, 6, 8, 10, 12, 14, 16, 18, 20]
```

In [13]:
```
#Q13
def func(val):
    return val%2==0

def filter(f,a):
    x1=[x for x in a if func(x) ]
    return x1

x=[234,341,3,16,4621,453,26,4531,312,246]
print(filter(func,x))
```

```
[234, 16, 26, 312, 246]
```

In [14]:
```
#Q14
def triplets(n):
    return [ (a,c-a,c) for c in range(2,n) for a in range(1,c//2+1) ]
print(triplets(9))
```

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

In [15]:
```
#Q15
import pandas as pd
data_frame = pd.read_csv("hello.csv")
print(data_frame.head)
arr = data_frame.to_numpy()
print(arr)
```

```
<bound method NDFrame.head of    Roll Name  Age  Marks
0     1  XYZ   12    100
1     2  ABC   13     50>
[[1 'XYZ' 12 100]
 [2 'ABC' 13 50]]
```

In [16]:
```
#Q16
import pandas as pd
data_frame = pd.read_csv("hello1.csv" ,sep = ':')
print(data_frame.head)
arr = data_frame.to_numpy()
print(arr)
```

```
<bound method NDFrame.head of          Roll Name   Age  Marks
0           1  XYZ  12.0  100.0
1           2  ABC  13.0   50.0
2    //dhbxnd  NaN   NaN    NaN
3  #njwkxmklw  NaN   NaN    NaN>
[['1' 'XYZ' 12.0 100.0]
 ['2' 'ABC' 13.0 50.0]
 ['//dhbxnd' nan nan nan]
 ['#njwkxmklw' nan nan nan]]
```

In [17]:
```
#Q17
import pandas as pd
data_frame = pd.read_csv("hello1.csv" ,sep = ':')
print(data_frame.head)
arr = data_frame.to_numpy()
print(arr)
```

```
<bound method NDFrame.head of          Roll Name   Age  Marks
0           1  XYZ  12.0  100.0
1           2  ABC  13.0   50.0
```

```
2    //dhbxnd  NaN   NaN    NaN
3  #njwkxmklw  NaN   NaN    NaN>
[['1' 'XYZ' 12.0 100.0]
 ['2' 'ABC' 13.0 50.0]
 ['//dhbxnd' nan nan nan]
 ['#njwkxmklw' nan nan nan]]
```

In [18]:
```
#Q18
import string
def mutate(d):
    res=[]
    for i in range(len(d)+1):
        temp=[d[:i]+a+d[i:] for a in string.ascii_lowercase]
        res.extend(temp)
    temp=[d[:i]+d[i+1:] for i in range(len(d))]
    res.extend(temp)
    for i in range(len(d)+1):
        temp=[d[:i]+a+d[i+1:] for a in string.ascii_lowercase]
        res.extend(temp)
    for i in range(len(d)-1):
        res.append(d[:i]+d[i+1]+d[i]+d[i+2:])
    return res
print(  mutate('hello'))
```

```
['ahello', 'bhello', 'chello', 'dhello', 'ehello', 'fhello', 'ghello', 'hhello', 'ih
ello', 'jhello', 'khello', 'lhello', 'mhello', 'nhello', 'ohello', 'phello', 'qhell
o', 'rhello', 'shello', 'thello', 'uhello', 'vhello', 'whello', 'xhello', 'yhello',
'zhello', 'haello', 'hbello', 'hcello', 'hdello', 'heello', 'hfello', 'hgello', 'hhe
llo', 'hiello', 'hjello', 'hkello', 'hlello', 'hmello', 'hnello', 'hoello', 'hpell
o', 'hqello', 'hrello', 'hsello', 'htello', 'huello', 'hvello', 'hwello', 'hxello',
'hyello', 'hzello', 'heallo', 'hebllo', 'hecllo', 'hedllo', 'heello', 'hefllo', 'heg
llo', 'hehllo', 'heillo', 'hejllo', 'hekllo', 'helllo', 'hemllo', 'henllo', 'heoll
o', 'hepllo', 'heqllo', 'herllo', 'hesllo', 'hetllo', 'heullo', 'hevllo', 'hewllo',
'hexllo', 'heyllo', 'hezllo', 'helalo', 'helblo', 'helclo', 'heldlo', 'helelo', 'hel
flo', 'helglo', 'helhlo', 'helilo', 'heljlo', 'helklo', 'helllo', 'helmlo', 'helnl
o', 'helolo', 'helplo', 'helqlo', 'helrlo', 'helslo', 'heltlo', 'helulo', 'helvlo',
'helwlo', 'helxlo', 'helylo', 'helzlo', 'hellao', 'hellbo', 'hellco', 'helldo', 'hel
leo', 'hellfo', 'hellgo', 'hellho', 'hellio', 'helljo', 'hellko', 'helllo', 'hellm
o', 'hellno', 'helloo', 'hellpo', 'hellqo', 'hellro', 'hellso', 'hellto', 'helluo',
'hellvo', 'hellwo', 'hellxo', 'hellyo', 'hellzo', 'helloa', 'hellob', 'helloc', 'hel
lod', 'helloe', 'hellof', 'hellog', 'helloh', 'helloi', 'helloj', 'hellok', 'hello
l', 'hellom', 'hellon', 'helloo', 'hellop', 'helloq', 'hellor', 'hellos', 'hellot',
'hellou', 'hellov', 'hellow', 'hellox', 'helloy', 'helloz', 'ello', 'hllo', 'helo',
'helo', 'hell', 'aello', 'bello', 'cello', 'dello', 'eello', 'fello', 'gello', 'hell
o', 'iello', 'jello', 'kello', 'lello', 'mello', 'nello', 'oello', 'pello', 'qello',
'rello', 'sello', 'tello', 'uello', 'vello', 'wello', 'xello', 'yello', 'zello', 'ha
llo', 'hbllo', 'hcllo', 'hdllo', 'hello', 'hfllo', 'hgllo', 'hhllo', 'hillo', 'hjll
o', 'hkllo', 'hlllo', 'hmllo', 'hnllo', 'hollo', 'hpllo', 'hqllo', 'hrllo', 'hsllo',
'htllo', 'hullo', 'hvllo', 'hwllo', 'hxllo', 'hyllo', 'hzllo', 'healo', 'heblo', 'he
clo', 'hedlo', 'heelo', 'heflo', 'heglo', 'hehlo', 'heilo', 'hejlo', 'heklo', 'hell
o', 'hemlo', 'henlo', 'heolo', 'heplo', 'heqlo', 'herlo', 'heslo', 'hetlo', 'heulo',
'hevlo', 'hewlo', 'hexlo', 'heylo', 'hezlo', 'helao', 'helbo', 'helco', 'heldo', 'he
leo', 'helfo', 'helgo', 'helho', 'helio', 'heljo', 'helko', 'hello', 'helmo', 'heln
o', 'heloo', 'helpo', 'helqo', 'helro', 'helso', 'helto', 'heluo', 'helvo', 'helwo',
'helxo', 'helyo', 'helzo', 'hella', 'hellb', 'hellc', 'helld', 'helle', 'hellf', 'he
llg', 'hellh', 'helli', 'hellj', 'hellk', 'helll', 'hellm', 'helln', 'hello', 'hell
p', 'hellq', 'hellr', 'hells', 'hellt', 'hellu', 'hellv', 'hellw', 'hellx', 'helly',
'hellz', 'helloa', 'hellob', 'helloc', 'hellod', 'helloe', 'hellof', 'hellog', 'hell
oh', 'helloi', 'helloj', 'hellok', 'hellol', 'hellom', 'hellon', 'helloo', 'hellop',
'helloq', 'hellor', 'hellos', 'hellot', 'hellou', 'hellov', 'hellow', 'hellox', 'hel
loy', 'helloz', 'ehllo', 'hlelo', 'hello', 'helol']
```

In [19]:
```
#Q19
import string
def mutate(d):
    res=[]
    for i in range(len(d)+1):
        temp=[d[:i]+a+d[i:] for a in string.ascii_lowercase]
```

```
        res.extend(temp)
    temp=[d[:i]+d[i+1:] for i in range(len(d))]
    res.extend(temp)
    for i in range(len(d)+1):
        temp=[d[:i]+a+d[i+1:] for a in string.ascii_lowercase]
        res.extend(temp)
    for i in range(len(d)-1):
        res.append(d[:i]+d[i+1]+d[i]+d[i+2:])
    return res
def nearly_equal(a,b):
    return a in mutate(b)
print (nearly_equal("heflo",'helo'))
```

```
True
```

In [20]:

```
#Q20
f="file.txt"
file = open ( f, "r" )
a=[]
b={}
for i in file:
    for j in range(0,len(i)):
        a.append(i[j])
for i in a:
    if i in b:
        b[i]+=1
    else:
        b[i]=1
print(b)
c=f.split(".")
if c[1]=="txt":
    print("\n\nit is a text file")
elif c[1]=="cpp":
    print("\n\nit is a c++ file")
elif c[1]=="py":
    print("\n\nit is a python file")
else:
    print("\n\nit is a c file")
```

```
{'h': 7, 'e': 149, 'l': 65, 'o': 45, 'L': 1, 'r': 50, 'm': 55, ' ': 187, 'i': 105,
'p': 25, 's': 84, 'u': 97, 'd': 31, 't': 87, 'a': 84, ',': 32, 'c': 41, 'n': 77,
'g': 19, '.': 31, 'A': 6, '\n': 24, 'C': 3, 'q': 16, 'b': 12, 'D': 5, 'f': 9, 'N':
5, 'j': 3, 'v': 18, 'I': 2, 'V': 1, 'P': 1, 'Q': 1, 'E': 3, 'M': 2, 'S': 2}


it is a text file
```

In [21]:

```
#Q21
def anagrams(x):
        from itertools import permutations
        s={}
        while len(x)>0:
                x1=x.pop()
                s[x1]=s.get(x1,[])
                s[x1].append(x1)
                i=0
                while i<len(x):
                        z1=x[i]
                        perm=[''.join(p) for p in permutations(x1)]
                        if z1 in perm:
                                x.remove(z1)
                                s[x1].append(z1)
                        else:i=i+1
        return s.values()
print (anagrams(['tae','souep','eat','ihba','node','peuos','ate','abhi','bhia','done
```

```
dict_values([['soupe', 'souep', 'peuos'], ['tea', 'tae', 'eat', 'ate'], ['done', 'no
de'], ['bhia', 'ihba', 'abhi']])
```

In [ ]: