ALL USEFUL PYTHON CODES FOR O LEVEL PYTHON MODULE M3

```python
#-----------------------------------------------------------------------------------------

print("\n Practical 1 Even or odd number \n")

num=int(input("Enter a number: "))

if (num%2)==0:
    print("Entered Number" ,num,"is Even.")
else:
    print("Entered Number" ,num,"is Odd.")

#-----------------------------------------------------------------------------------------

print("\n Practical 2 factorial  \n")

num=int(input("Enter a number: "))

factorial=1

if num<0:
    print("Factorial does not exist for negative numbers.")
```

```
elif num==0:
    print("Factorial of 0 is 1.")

else:
    for i in range(1,num+1):
        factorial=factorial*i
    print("Factorial of ",num, "is",factorial)


#-----------------------------------------------------------------------------------------

print("\n Practical 3 Area and circumstance of circle\n")

radius=int(input("Enter radius of circle: "))
area=3.14*radius*radius
circumference=3.14*2*radius

print("The circumference of circle with radius",radius,"is",circumference,"unit")

print("The area of circle with radius",radius,"is",area,"unit sq.")

#=========================================================================================
```

```python
print("\n Practical 4 Calender of jan 2023\n")

import calendar
year=2023
month=1
print(calendar.month(year,month))

#-----------------------------------------------------------------------------------------

print("\n Practical 5 number of days between two dates\n")

from datetime import date
firstdate=date(2020,5,23)
seconddate=date(2021,6,24)
diff=seconddate-firstdate
print(diff)

#-----------------------------------------------------------------------------------------

print("\n Practical 6 \n")

vowel=["a","e","i","o","u","A","E","I","O","U"]
```

```
char=input("Enter any character: ")

if char in vowel:
    print(char,"is a Vowel.")
else:
    print(char,"is not a Vowel. It is a Consonant")

#-------------------------------------------------------------------------------------------

print("\n Practical 7  Count Total characters in a string\n")
str="Mohit Bhandari"
print(len(str))

count=0 #wrong code from here
for i in str:
    count+=1
    print(count)

#-------------------------------------------------------------------------------------------
```

```
print("\n Practical 8 program to get a string made from first two and last two characters of a
given string. if string length is less than two charcters return empty string\n")

str=input("Enter any String value: ")
if len(str)<2:
    print(" ")
else:
    print(str[0:2]+str[-2:])

#-------------------------------------------------------------------------------------------

print("\n Practicla 9 code to get a string from a string where all the occurences of its first
character is changed to $ except the very first occurence \n")

str=input("Enter a String value: ")
char=str[0]
str1=str.replace(char,'$')
str1=char+str1[1:]
print(str1)


#-------------------------------------------------------------------------------------------
```

```
print("\n Practical 10 code to print a single string from two given string separated by a space
and swap  the first two characters of the strings\n")

str1=input("Enter first string: ")
str2=input("Enter second string: ")

newstr1=str2[:2]+str1[2:]
newstr2=str1[:2]+str2[2:]

print(newstr1,"",newstr2)

#-------------------------------------------------------------------------------------------

print("\n Practical 11 code to change a given string into a new string by swaping the first and
last character\n")

str=input("Enter a string: ")

print(str[-1]+str[1:-1]+str[0])

#-------------------------------------------------------------------------------------------
```

```
print("\n Practical 12 calculator\n")

def add(x,y):
    return(x+y)

def sub(x,y):
    return(x-y)

def mul(x,y):
    return(x*y)

def div(x,y):
    return(x/y)

num1=int(input("Enter 1st Number: "))
num2=int(input("Enter 2st Number: "))

print("The addition of",num1,"&",num2,"is :",add(num1,num2))
print("The difference of",num1,"&",num2,"is :",sub(num1,num2))
print("The multiplication of",num1,"&",num2,"is :",mul(num1,num2))
print("The division of",num1,"&",num2,"is :",div(num1,num2))
```

```
#-----------------------------------------------------------------------------------------

print("\n Practical 13 code to find sum of digits of an integer number using while loop\n")

n=int(input("Enter a number: "))
sum=0
while(n>0):
    digit=n%10
    sum=sum+digit
    n=n//10

print("The sum of digits is:",sum) #print is removed from loop cycle to prevent iteration of each
step

#-----------------------------------------------------------------------------------------

print("\n Practical 14 Reverse Number from a given number\n")

n=int(input("Enter a number: "))
reverse=0
while(n>0):
    digit=n%10
```

```
    reverse=reverse*10+digit
    n=n//10

print("The reverse of the input number is:",reverse)

#-------------------------------------------------------------------------------------

print("\n Practical 15 check if given number is palendrome or not\n")

n=int(input("Enter a number: "))
num=n
sum=0
while(n>0):
    digit=n%10
    sum=sum*10+digit
    n=n//10
if sum==num:
    print("The entered number is a Palendrome.")
else:
    print("The entered number is not a Palendrome.")


#-------------------------------------------------------------------------------------
```

```
print("\n Practical 16 to find the list of odd numbers in an array \n")

import numpy as np

arry=np.array[10,20,25,54,56,12,15,12,23,29,48,47,47,49]

print("**The list of Odd numbers in the given array is:**")
for i in range(len(arry)):
    if(arry[i]%2!=0):
        print(arry[i],end=" ")


#-------------------------------------------------------------------------------------------
--------
print("\n Practical 16 to find the list of odd numbers in an list or tupple \n")


list=[10,20,25,54,56,12,15,12,23,29,48,47,47,49]

print("The Odd numbers in the given list are:")
for i in range(len(list)):
    if(list[i]%2!=0):
        print(list[i],end=" ")
```

```
#-------------------------------------------------------------------------------------------------
--------
print("\n Practical 16 to find the list of even numbers in an list or tupple \n")


list=[10,20,25,54,56,12,15,12,23,29,48,47,47,49]

print("The Even numbers in the given list are:")
for i in range(len(list)):
    if(list[i]%2==0):
        print(list[i],end=" ")



print("\n Practical 17 Input number and get grade \n")

score=float(input("Enter your score: "))

if score>1:
    print("ERROR")
```

```
elif score>=0.9:
    print("A")

elif score>=0.8:
    print("B")

elif score>=0.7:
    print("C")

elif score>=0.6:
    print("D")

elif score<0.6:
    print("D")

else:
    print("PASS")

#-------------------------------------------------------------------------------------------
-----
print("\n Practical 18 multiptication by repeated addition (recursion)\n")
```

```
num1=int(input("Enter 1st Number: "))
num2=int(input("Enter 2st Number: "))

sum=0
for i in range(1,1+num2):
    sum=sum+num1
print("Result:",sum)

#-------------------------------------------------------------------------------------------------
-----
print("\n Practical 19 sum of cubes of n numbers \n")

num=int(input("Enter last number of series: "))

sum=0
for i in range(1,num+1):
    sum=sum+i*i*i

print("Sum of cubes of numbers till",num,"is:",sum)
```

```
#-------------------------------------------------------------------------------------------
-----
print("\n Practical 19 sum of cubes of n numbers using function\n")

def function(num):
    sum=0
    for i in range(1,num+1):
        sum=sum+i*i*i
    return sum
num=int(input("Enter last number of series: "))

print("Sum of cubes of numbers till",num,"is:",sum)

#-------------------------------------------------------------------------------------------
------'

print("\n Practical 20 Swaping value of two numbers with 3rd variable\n")

num1=int(input("Enter 1st Number: "))
num2=int(input("Enter 2nd Number: "))

print("Before swaping: 1st Number=",num1,"& 2nd Number=",num2)
```

```
temp=num1
num1=num2
num2=temp

print("After swaping: 1st Number=",num1,"& 2nd Number=",num2)


#=============================================================================================
========

print("\n Practical 20 Swaping value of two numbers without 3rd variable\n")

num1=int(input("Enter 1st Number: "))
num2=int(input("Enter 2nd Number: "))

print("Before swaping: 1st Number=",num1,"& 2nd Number=",num2)

num1=num1+num2 #or another method is to use "a,b=b,a"
num2=num1-num2
num1=num1-num2

print("After swaping: 1st Number=",num1,"& 2nd Number=",num2)
```

```
#=================================================================================================
=======
print("\n Practical 21 take list of numbers and input and find \n")

list=[]
for i in range(5):
    num=int(input("Enter Numbers: "))
    list.append(num)
    list.sort()
print("List formed by input numbers: ",list)


print("largest input: ",list[4]) #or we can use "max(list)"
print("smallest input: ",list[0]) #or we can use "min(list)"

product=1
for i in range(5):
    product=product*list[i]
print("Product of inputs: ",product)
```

```
print("Successor of 3rd Element: ",list[2+1])
print("Predecessor of 3rd Element: ",list[2-1])

print("Sum of inputs: ",sum(list))



#=============================================================================================
=======
print("\n Practical 22 find sum of all numbers between 100 and 500 divisible by 5 and 7 \n")


sum=0
list=[]
for i in range(100,500+1):
    if i%5==0 and i%7==0:
        sum=sum+i
        list.append(sum)
print("The numbers are:",list,"And The sum is:",sum)


#=============================================================================================
=======
```

```
print("\n Practical 23 list of all prime numbers in an interval \n")

start=int(input("Enter starting value: "))
end=int(input("Enter terminating value: "))
list=[]
for num in range(start,end+1):
    for i in range(2,num):
        if num%i==0:
            break
    else:
        list.append(num)

print("Prime numbers between ",start,"and ",end, "are: ",list)


#=========================================================================================
=======
print("\n Practical 24 test whether a year is leap or not \n")

year=int(input("Enter a year: "))

if year%4==0 and year%100!=0:
    print(year," is  a Leap year.")
```

```
elif year%400==0:
    print(year," is  a Leap year.")
else:
    print(year," is  not a Leap year.")



#=======================================================================================================
=======
print("\n Practical 25 star making 4 roe 4 column\n")

for row in range(4+1):
    for column in range(row):
        print("*", end=" ")
    print()

#=======================================================================================================
=======
print("\n Practical 26 star making in reverse\n")

for row in range(4+1):
    for column in range(4+1-row):
        print("*", end=" ")
```

```
    print()


#=============================================================================================
=======
print("\n Practical 27 factorial by function and recursion\n")

def fact(n):
    if n==1:
        return n
    else:
        return n*fact(n-1)
n=int(input("Enter a number: "))
print(n,"!=",fact(n))


#=============================================================================================
=======
print("\n Practical 28 to write all armstrong number in a range\n")

#Armstrong number is a number that is equal to the sum of cubes of its digits. For example 0, 1,
153, 370, 371 and 407 are the Armstrong numbers.
```

```
start=int(input("Enter starting value: "))
end=int(input("Enter terminating value: "))
list=[]
for i in range(start,end+1):
    num=i
    sum=0
    while i>0:
        rem=i%10
        sum=sum+(rem*rem*rem)
        i=i//10

    if num==sum:
        list.append(num)
print("Armstrong numbers between",start,"and",end,"are:",list)


#-------------------------------------------------------------------------------------------
---

print("\n Practical 29 check if given string is palendrome or not\n")

str=(input("Enter a string word: "))
temp=str
```

```
reverse=str[::-1]
if reverse==temp:
    print("The entered string is a Palendrome.")

else:
    print("The entered string is not a Palendrome.")

#-------------------------------------------------------------------------------------------
---

print("\n Practical 30 to count the number of repetition of characters in a string\n")

str=input("Enter a string: ")
charcounter={}

for character in str:
    if character in charcounter:
        charcounter[character]+=1
    else:
        charcounter[character]=1

for character, rep in charcounter.items():
```

```
    if rep >1:
    print(character," ",rep)

#-------------------------------------------------------------------------------------------
---

print("\n Practical 30 to count odd and even numbers in a list\n")

list=[]
print("Enter 10 numbers: ")
for i in range(10):
    num=int(input())
    list.append(num)
    Ecounter=Ocounter=0
for number in range(10):
    if number%2==0:
        Ecounter+=1
    else:
        Ocounter+=1
print("the even count is",Ecounter,"and odd count is", Ocounter)
```

```
#-------------------------------------------------------------------------------------------
---


#to find sum of given three integers

int1=int(input("Enter 1st integer:"))
int2=int(input("Enter 2nd integer:"))
int3=int(input("Enter 3rd integer:"))

total = int1+int2+int3
print("Sum of",int1,",",int2,"and",int3, "is :",total)


#-------------------------------------------------------------------------------------------
---


#reverse the list items

list=[1,2,3,4,5,6,7,8,9,10]
print(list)
print(list[::-1])
```

```
#-----------------------------------------------------------------------------------------
---


#solve (x+y)*(X+y)

x=int(input("enter x:"))
y=int(input("enter y:"))

result=(x+y)*(x+y)

print("result of (x+y)*(x+y) at x=",x,"and y=",y,"is:",result)


#-----------------------------------------------------------------------------------------
---


#to find exponents by recursion

def exponent(b,p):
    if p>0:
```

```
        return b*exponent(b,p-1)
    else:
        return 1

b=int(input("Enter base Number:"))
p=int(input("Enter power number:"))

print("base",b,"raised to power",p,"by recursion method is:",exponent(b,p))

#without recursion, we can use "pow(b,p)" function or "p**b" in print


#================================================================================


#to generate a list from a list which contains elements that appear more than once

list=[2,4,5,6,7,8,9,3,5,2,3,1,5,]
size=len(list)
newlist=[]

for i in range(size):
    k=i+1
```

```
    for j in range(k,size):
        if list[i]==list[j] and list[i] not in newlist:
            newlist.append(list[i])

print("List:", list)
print("New List that contains elements of List which appear more than once:", newlist)


#=============================================================================================


#Mean of the values in a dictionary

mydict=dict(a=1,b=2,c=3,d=4,e=5,f=6)

print("MY dictionary:",mydict)
total=0
for i in mydict.values():
    total=total+i

mean=total/len(mydict)

print("Mean of the vlaues is:",mean)
```

```
#=============================================================================================
==


#cumulative sum of the list

def myfun(sum):
    new=[]
    cumulativeSum=0
    for i in sum:
        cumulativeSum+=i
        new.append(cumulativeSum)
    return new

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

print("List is :",list)
print("New cummulative sum list is :", myfun(list))


#=============================================================================================
```

```python
#to sort dictionary by keys and values

mydict=dict(Mohit=19,Rohit=23,Rahul=19,Rishu=20,Arsh=18,Mann=17,Tanuj=15)

sk=dict(sorted(mydict.items()))
sv=dict(sorted(mydict.items(), key=lambda item:item[1]))

print("Dictionary:",mydict)
print()
print("Dictionary sorted by KEYS:",sk)
print()
print("Dictionary sorted by VALUES:",sv)



#=============================================================================================


#find product of two numbers by repeated addition

num1=int(input("Enter first Number:"))
num2=int(input("Enter Second Number:"))
```

```
product=0

for i in range(1,num2+1):
    product=product+num1

print("Product of",num1,"and",num2,"is:",product)


#=============================================================================================


# to take two list and return true if both list have at least 1 item common

def common_item(list1,list2):
    result=False
    for x in list1:
        for y in list2:
            if x==y:
                result=True
                return True

print(common_item([1,2,3,4,5,5,6],[2,6,7,8,9,0]))
print(common_item([1,2,3,4,5,6],[7,8,9,0]))
```

```
#================================================================================

#to print a random number btw 0 and 100 and then print true if it is divisible by 5


from random import*
def myfun():

    x=randint(0,100+1)
    print(x)

    if x%5==0:
        print("True")
    else:
        print("False")

myfun()

#================================================================================
```

```
#take list as input from user

L=[]
print("Enter 10 elements for the list")
for i in range(0,10):
    element=int(input("Enter Element:"))
    L.append(element)

print("List from User input: ",L)

#Q1 new list with elements+10

print(L)
print()
L1=[x+10 for x in L]
print("New list L1 by adding 10 to elements of list L:",L1)

#Q2 find total number of positive and negative int in list

positive=0
negative=0
for x in L:
```

```
    if x>0:
        positive+=1
    else:
        negative+=1
print("List L:",L)
print()
print("Total Number of POSITIVE integrs in List:",positive)
print("Total Number of POSITIVE integrs in List:",negative)

#Q3 count elements divisible by 5
count=0
for x in L:
    if x%5==0:
        count+=1
print("Total Numbers divisible by 5 are :",count)

#Q4 remove repetitive items from the list
newL=[]
for x in L:
    if x not in newL:
        newL.append(x)
print("L:",L)
```

```
print()
print("newL:",newL)


#Q5 create dictionary with keys as list items and values as List item frequencies

dict={}

for item in L:
    if(item in dict):
        dict[item]+=1
    else:
        dict[item]=1

print("List:",L)
print()
print("Dictionary:",dict)

#================================================================================


#compute HCF
```

```
def HCF(x,y):
    if x>y:
        smaller=y
    else:
        smaller=x

    for i in range(1,smaller+1):
        if((x%1==0) and (y%i==0)):
            hcf=i
    return i

num1=int(input("Enter first number:"))
num2=int(input("Enter second number:"))
print()
print("The HCF of",num1,"and",num2,"is:",HCF(num1,num2))


#=======================================================================================
=======


#factorial by function and recursion
```

```python
def fact(n):
    if n==1:
        return n
    else:
        return n*fact(n-1)
n=int(input("Enter a number: "))
print(n,"!=",fact(n))


#=======================================================================================
=======


# to write all armstrong number in a range

#Armstrong number is a number that is equal to the sum of cubes of its digits. For example 0, 1,
153, 370, 371 and 407 are the Armstrong numbers.

start=int(input("Enter starting value: "))
end=int(input("Enter terminating value: "))
list=[]
for i in range(start,end+1):
    num=i
```

```
    sum=0
    while i>0:
        rem=i%10
        sum=sum+(rem*rem*rem)
        i=i//10

    if num==sum:
        list.append(num)
print("Armstrong numbers between",start,"and",end,"are:",list)


#=============================================================================================
=======


#take list of numbers and input and find

list=[]
for i in range(5):
    num=int(input("Enter Numbers: "))
    list.append(num)
    list.sort()
print("List formed by input numbers: ",list)
```

```
print("largest input: ",list[4]) #or we can use "max(list)"
print("smallest input: ",list[0]) #or we can use "min(list)"

product=1
for i in range(5):
    product=product*list[i]
print("Product of inputs: ",product)



#================================================================================


#take sentence as input and display different feature like no of capital letter etc

import string

str1=str(input("Enter a Sentence:"))

def analyze_sentence(str1):
    totalWords=len(str1.split())
```

```
    CapitalCount=0
    SmallCount=0
    totalLetter=0
    totalSpecialChar=0

    for char in str1:
        if char.isupper():
            CapitalCount+=1
            totalLetter+=1
        elif char.islower():
            SmallCount+=1
            totalLetter+=1
        elif char in string.punctuation:
            totalSpecialChar+=1
        elif char.isspace():
            totalSpecialChar+=1

    return totalWords,CapitalCount,SmallCount,totalSpecialChar,totalLetter

totalWords,CapitalCount,SmallCount,totalSpecialChar,totalLetter=analyze_sentence(str1)

print("Sentence:",str1)
```

```
print()
print("Total Words:",totalWords)
print()
print("Total Letters:",totalLetter)
print()
print("Total Capital Letters:",CapitalCount)
print()
print("Total Small Letters:",SmallCount)
print()
print("Total Special Characters:",totalSpecialChar)
print()



#=============================================================================================


#store student and their numbers in dictionary and display records when name given input

students=dict(Mohit=[99,98,97,99,100,99],Rahul=[99,99,87,89,90,99],Rishu=[99,98,97,99,100,99],Arsh
=[99,98,97,99,100,99],Tanuj=[99,99,87,89,90,99])

print("Original Dictionary:",students)
```

```
print()

name=input("Enter student name:")
if name in students.keys():
    print(name,":",students[name])
else:
    print("No student found.")



#=============================================================================================


#to find intersection of two arrays

def intersection(array1,array2):
    result=list(filter(lambda x:x in array1 , array2))
    print("Intersection:",result)

if __name__=="__main__": #double underscore
    array1=[1,2,3,4,5]
    array2=[3,4,5,6,7]
    intersection(array1,array2)
```

```python
#=============================================================================================

#to find union of two arrays

def union(array1, array2):
    result = list(set(array1 + array2))
    print("Union:", result)

if __name__ == "__main__":
    array1 = [1, 2, 3, 4, 5]
    array2 = [3, 4, 5, 6, 7]
    union(array1, array2)



#=============================================================================================

#NumPy code to fnd the most frequent value in the array

import numpy as np
```

```
array=[1,2,3,4,5,1,1,2,2,2,3,4,5,6,7,8]
print("Array:",array)

value=np.bincount(array).argmax()
print()
print("Number with maximum frequency:",value)


#=============================================================================================


#python code to print fibonacci series upto n terms by using recursion

def fibonacci(n):
    if n<=1:
        return n
    else:
        return (fibonacci(n-1)+fibonacci(n-2))

n=int(input("Enter the numbers of terms :"))

if n<=0:
```

```
    print("Please enter a positive number.")
else:
    print("Fibonacci Series upto",n,"terms is:")
    for i in range(n):
        print(fibonacci(i))


#=============================================================================================


#to combine two dictionaries by adding their values for common keys

from collections import Counter
d1=dict(a=100,b=200,c=300)
d2=dict(a=300,b=200,c=100)

d=Counter(d1) + Counter(d2)

print(d)


#=============================================================================================
```

```
#code to read a text file and count the occurrence of a certain letter that appears in the file

name=input("Enter File Name:")
findletter=input("Enter Letter to be Searched: ")
k=0

with open(name,'r') as f:
    for line in f:
        words = line.split()
        for i in words:
            for letter in i:
                if(letter==findletter):
                    k=k+1
print("Occurrence of the letter:",k)


#================================================================================


#to find sum of given three integers

int1=int(input("Enter 1st integer:"))
int2=int(input("Enter 2nd integer:"))
```

```
int3=int(input("Enter 3rd integer:"))

total = int1+int2+int3
print("Sum of",int1,",",int2,"and",int3, "is :",total)


#-------------------------------------------------------------------------------------------
---


#reverse the list items

list=[1,2,3,4,5,6,7,8,9,10]
print(list)
print(list[::-1])


#-------------------------------------------------------------------------------------------
---


#solve (x+y)*(X+y)

x=int(input("enter x:"))
```

```
y=int(input("enter y:"))

result=(x+y)*(x+y)

print("result of (x+y)*(x+y) at x=",x,"and y=",y,"is:",result)


#-------------------------------------------------------------------------------------------
---


#to find exponents by recursion

def exponent(b,p):
    if p>0:
        return b*exponent(b,p-1)
    else:
        return 1

b=int(input("Enter base Number:"))
p=int(input("Enter power number:"))

print("base",b,"raised to power",p,"by recursion method is:",exponent(b,p))
```

```
#without recursion, we can use "pow(b,p)" function or "p**b" in print


#-------------------------------------------------------------------------------------------
---


#factorial

num=int(input("Enter a Number:"))
fact=1

if num<0:
    print("Factorial of Negative is not defined.")
elif num==0:
    print("factorial of 0 is 1.")
else:
    for i in range(1,num+1):
        fact=fact*i
    print("Factorial of", num,"is :",fact)
```

```
#-------------------------------------------------------------------------------------------
---

#calendar

import calendar
year=2024
month=7

print(calendar.month(year,month))


#-------------------------------------------------------------------------------------------
---


#leap year

year=int(input("Enter a year:"))

if (year%400==0) or (year%4==0 and year%100!=0):
    print(year,"is a Leap Year.")
```

```
else:
    print(year,"is not a Leap year.")


#-------------------------------------------------------------------------------------------
---


#datetime sustraction

from datetime import date

firstdate=date(2024,7,6)
seconddate=date(2024,1,1)

diff=firstdate-seconddate

print(diff)


#-------------------------------------------------------------------------------------------
---
```

```python
#calculator

def add(x,y):
    return x+y
def sub(x,y):
    return x-y
def mul(x,y):
    return x*y
def div(x,y):
    return x/y

num1=int(input("Enter a number:"))
num2=int(input("Enter a number:"))

print("additon=",add(num1,num2))
print("subtraction=",sub(num1,num2))
print("multiplication=",mul(num1,num2))
print("division=",div(num1,num2))


#-----------------------------------------------------------------------------------------
---
```

```python
#Row wise elements addition in tupple matrix

matrix=[(1,2,3),(4,5,6),(7,8,9)]

rowSum=[]

for row in matrix:
    rowSum.append(sum(row))
for row in matrix:
    print(row)
print("Row wise sum of tupple matrix:",rowSum)


#------------------------------------------------------------------------------------------
---


#to count the number of character frequency in "google.com"

string="google.com"
freqCount={}

for char in string:
```

```
    if char in freqCount:
        freqCount[char]+=1
    else:
        freqCount[char]=1
print("Character Frequency: ",freqCount)


#-------------------------------------------------------------------------------------------
---


#do the following

string="Information Technology"

print("string:",string)

print("Index of n:",string.find('n'))

print("Splitting string a every O:",string.split('o'))

if string==string[::-1]:
    print("String is Palindrome")
```

```
else:
    print("String is not Palindrome")

print("Count od n:",string.count('n'))

print("New string:",string+" Platform")


#-------------------------------------------------------------------------------------------
---


#concatenate two numpy arrays on 1 axis

import numpy as np

array1=np.array([[[1,2],[3,4]],[[5,6],[7,8]]])
array2=np.array([[[11,22],[33,44]],[[55,66],[77,88]]])

result=np.concatenate((array1,array2), axis=1)

print("ARRAY 1:",array1)
print()
```

```
print("ARRAY 2:",array2)
print()
print("CONCATENATE RESULT:",result)

#-------------------------------------------------------------------------------------------
---


#count odd even numbers by lambda function

num=[1,2,3,4,5,6,7,8,9]

Ocount=len(list(filter(lambda x: x%2!=0, num)))
Ecount=len(list(filter(lambda x: x%2==0, num)))

print("Odd Count:",Ocount)
print("Even Count:",Ecount)


#-------------------------------------------------------------------------------------------
---
```

```python
#lambda

f=lambda x,y:x+y

print(f(3,3))


#-------------------------------------------------------------------------------------------
---

#fibonacci seires

def fibonacci(n):
    if n<=1:
        return n
    else:
        return (fibonacci(n-1)+fibonacci(n-2))

n=int(input("Enter a number:"))

if  n<=0:
    print("Enter a positive number:")
else:
```

```
    print("fibonacci series:",n)
    for i in range(n):
        print(fibonacci(i),)




#=============================================================================================


#to generate a list from a list which contains elements that appear more than once

list=[2,4,5,6,7,8,9,3,5,2,3,1,5,]
size=len(list)
newlist=[]

for i in range(size):
    k=i+1
    for j in range(k,size):
        if list[i]==list[j] and list[i] not in newlist:
            newlist.append(list[i])

print("List:", list)
```

```
print("New List that contains elements of List which appear more than once:", newlist)


#=============================================================================================


#Mean of the values in a dictionary

mydict=dict(a=1,b=2,c=3,d=4,e=5,f=6)

print("MY dictionary:",mydict)
total=0
for i in mydict.values():
    total=total+i

mean=total/len(mydict)

print("Mean of the vlaues is:",mean)

#=============================================================================================
==
```

```python
#cumulative sum of the list

def myfun(sum):
    new=[]
    cumulativeSum=0
    for i in sum:
        cumulativeSum+=i
        new.append(cumulativeSum)
    return new

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

print("List is :",list)
print("New cummulative sum list is :", myfun(list))


#=============================================================================================


#to sort dictionary by keys and values

mydict=dict(Mohit=19,Rohit=23,Rahul=19,Rishu=20,Arsh=18,Mann=17,Tanuj=15)
```

```
sk=dict(sorted(mydict.items()))
sv=dict(sorted(mydict.items(), key=lambda item:item[1]))

print("Dictionary:",mydict)
print()
print("Dictionary sorted by KEYS:",sk)
print()
print("Dictionary sorted by VALUES:",sv)



#=============================================================================================


#find product of two numbers by repeated addition

num1=int(input("Enter first Number:"))
num2=int(input("Enter Second Number:"))

product=0

for i in range(1,num2+1):
    product=product+num1
```

```
print("Product of",num1,"and",num2,"is:",product)


#=============================================================================================


# to take two list and return true if both list have atleast 1 item common

def common_item(list1,list2):
    result=False
    for x in list1:
        for y in list2:
            if x==y:
                result=True
                return True

print(common_item([1,2,3,4,5,5,6],[2,6,7,8,9,0]))
print(common_item([1,2,3,4,5,6],[7,8,9,0]))


#=============================================================================================
```

```python
#to print a random number btw 0 and 100 and then print true if it is divisible by 5

from random import*
def myfun():

    x=randint(0,100+1)
    print(x)

    if x%5==0:
        print("True")
    else:
        print("False")

myfun()

#=============================================================================================


#take list as input from user

L=[]
print("Enter 10 elements for the list")
for i in range(0,10):
```

```
    element=int(input("Enter Element:"))
    L.append(element)

print("List from User input: ",L)

#Q1 new list with elements+10

print(L)
print()
L1=[x+10 for x in L]
print("New list L1 by adding 10 to elements of list L:",L1)

#Q2 find total number of positive and negative int in list

positive=0
negative=0
for x in L:
    if x>0:
        positive+=1
    else:
        negative+=1
print("List L:",L)
```

```
print()
print("Total Number of POSITIVE integrs in List:",positive)
print("Total Number of POSITIVE integrs in List:",negative)

#Q3 count elements divisible by 5
count=0
for x in L:
    if x%5==0:
        count+=1
print("Total Numbers divisible by 5 are :",count)

#Q4 remove repetitive items from the list
newL=[]
for x in L:
    if x not in newL:
        newL.append(x)
print("L:",L)
print()
print("newL:",newL)


#Q5 create dictionary with keys as list items and values as List item frequencies
```

```
dict={}

for item in L:
    if(item in dict):
        dict[item]+=1
    else:
        dict[item]=1

print("List:",L)
print()
print("Dictionary:",dict)

#================================================================================


#compute HCF

def HCF(x,y):
    if x>y:
        smaller=y
    else:
        smaller=x
```

```
    for i in range(1,smaller+1):
        if((x%1==0) and (y%i==0)):
            hcf=i
    return i

num1=int(input("Enter first number:"))
num2=int(input("Enter second number:"))
print()
print("The HCF of",num1,"and",num2,"is:",HCF(num1,num2))


#=============================================================================================
=======


#factorial by function and recursion

def fact(n):
    if n==1:
        return n
    else:
        return n*fact(n-1)
n=int(input("Enter a number: "))
```

```
print(n,"!=",fact(n))


#=============================================================================================
=======


# to write all armstrong number in a range

#Armstrong number is a number that is equal to the sum of cubes of its digits. For example 0, 1,
153, 370, 371 and 407 are the Armstrong numbers.

start=int(input("Enter starting value: "))
end=int(input("Enter terminating value: "))
list=[]
for i in range(start,end+1):
    num=i
    sum=0
    while i>0:
        rem=i%10
        sum=sum+(rem*rem*rem)
        i=i//10
```

```
    if num==sum:
        list.append(num)
print("Armstrong numbers between",start,"and",end,"are:",list)

#=============================================================================================
=======


#take list of numbers and input and find

list=[]
for i in range(5):
    num=int(input("Enter Numbers: "))
    list.append(num)
    list.sort()
print("List formed by input numbers: ",list)


print("largest input: ",list[4]) #or we can use "max(list)"
print("smallest input: ",list[0]) #or we can use "min(list)"

product=1
for i in range(5):
```

```
    product=product*list[i]
print("Product of inputs: ",product)



#================================================================================


#take sentence as input and display different feature likeno of capital letter etc

import string

str1=str(input("Enter a Sentence:"))

def analyze_sentence(str1):
    totalWords=len(str1.split())
    CapitalCount=0
    SmallCount=0
    totalLetter=0
    totalSpecialChar=0

    for char in str1:
        if char.isupper():
```

```
            CapitalCount+=1
            totalLetter+=1
        elif char.islower():
            SmallCount+=1
            totalLetter+=1
        elif char in string.punctuation:
            totalSpecialChar+=1
        elif char.isspace():
            totalSpecialChar+=1

    return totalWords,CapitalCount,SmallCount,totalSpecialChar,totalLetter

totalWords,CapitalCount,SmallCount,totalSpecialChar,totalLetter=analyze_sentence(str1)

print("Sentence:",str1)
print()
print("Total Words:",totalWords)
print()
print("Total Letters:",totalLetter)
print()
print("Total Capital Letters:",CapitalCount)
print()
```

```
print("Total Small Letters:",SmallCount)
print()
print("Total Special Characters:",totalSpecialChar)
print()



#=============================================================================================



#store student and their numbers in dictionary and display records when name given input

students=dict(Mohit=[99,98,97,99,100,99],Rahul=[99,99,87,89,90,99],Rishu=[99,98,97,99,100,99],Arsh
=[99,98,97,99,100,99],Tanuj=[99,99,87,89,90,99])

print("Original Dictionary:",students)
print()

name=input("Enter student name:")
if name in students.keys():
    print(name,":",students[name])
else:
```

```
    print("No student found.")



#=============================================================================================


#to find intersection of two arrays

def intersection(array1,array2):
    result=list(filter(lambda x:x in array1 , array2))
    print("Intersection:",result)

if __name__=="__main__": #double underscore
    array1=[1,2,3,4,5]
    array2=[3,4,5,6,7]
    intersection(array1,array2)

#=============================================================================================

#to find union of two arrays

def union(array1, array2):
    result = list(set(array1 + array2))
```

```
    print("Union:", result)

if __name__ == "__main__":
    array1 = [1, 2, 3, 4, 5]
    array2 = [3, 4, 5, 6, 7]
    union(array1, array2)



#=============================================================================================


#NumPy code to fnd the most frequent value in the array


import numpy as np

array=[1,2,3,4,5,1,1,2,2,2,3,4,5,6,7,8]
print("Array:",array)

value=np.bincount(array).argmax()
print()
print("Number with maximum frequency:",value)
```

```
#================================================================================


#python code to print fibonacci series upto n terms by using recursion

def fibonacci(n):
    if n<=1:
        return n
    else:
        return (fibonacci(n-1)+fibonacci(n-2))

n=int(input("Enter the numbers of terms :"))

if n<=0:
    print("Please enter a positive number.")
else:
    print("Fibonacci Series upto",n,"terms is:")
    for i in range(n):
        print(fibonacci(i))
```

```
#=============================================================================================


#to combine two dictionaries by adding their values for common keys

from collections import Counter
d1=dict(a=100,b=200,c=300)
d2=dict(a=300,b=200,c=100)

d=Counter(d1) + Counter(d2)

print(d)


#=============================================================================================


#code to read a text file and count the occurrence of a certain letter that appears in the file

name=input("Enter File Name:")
findletter=input("Enter Letter to be Searched: ")
k=0
```

```
with open(name,'r') as f:
    for line in f:
        words = line.split()
        for i in words:
            for letter in i:
                if(letter==findletter):
                    k=k+1
print("Occurrence of the letter:",k)



#----------------------------------------END OF THE PYTHON CODES--------------------------------
--------------------------
```

THANK YOU