1)#Program to calculate the Net salary of an employee based on the designation

```
Name = input("Enter the name of an employee : ")
Basic = float(input("Enter the basic salary of an employee : "))
print("1.Manager\n2.Clerk\n3.Assistant")
Designation = int(input("Enter the designation type : "))
if(Designation == 1):
        DA  = Basic*127/100
        HRA = Basic*17/100
        Gross = Basic+DA+HRA
        Gross_temp=Gross*12
        if( Gross_temp<= 750000):
                IT=Gross*5.75/100
        elif( Gross_temp> 750000 and Gross_temp<=1000000 ):
                IT=Gross*6.25/100
        elif( Gross_temp> 1000000 and Gross_temp<=1200000 ):
                IT=Gross*6.75/100
        else:
                IT=Gross*7.5/100
elif(Designation == 2):
        DA  = Basic*107/100
        HRA = Basic*12/100
        Gross = Basic+DA+HRA
        Gross_temp=Gross*12
        if( Gross_temp>= 500000):
                IT=Gross*5.0/100
        elif( Gross_temp> 500000 and Gross_temp<=750000 ):
                IT=Gross*5.35/100
        elif( Gross_temp> 750000 and Gross_temp<=1000000 ):
                IT=Gross*5.75/100
        else:
                IT=Gross*6.0/100
```

```
elif(Designation == 3):
        DA  = Basic*97/100
        HRA = Basic*10/100
        Gross = Basic+DA+HRA
        Gross_temp=Gross*12
        IT=0
        if( Gross_temp>= 750000):
                IT=Gross*5.25/100
Net_Salary=Gross-IT
print("Name : ",Name,"\nDesignation : ",Designation,"\nBasic",Basic,"\nNet Salary : ",Net_Salary)
```

2)A#Program to demonstrate the working of stack using list

```
stack=[]
while True:
   print("1.Push\n2.Pop\n3.Exit")
   choice = int(input("Enter your choice : "))
   if(choice==1):
      element=int(input("Enter the element to be pushed : "))
      stack.append(element)
      print(stack)
   elif(choice==2):
      if(len(stack)==0):
        print(stack)
      else:
         print("Deleted element is ",stack.pop())
         print(stack)
   else:
      exit();
```

2)B#Program to demonstrate the student marks using dictonary

```
Marks={'Neha':[97,98,94,61],'Mithila':[67,89,78,98],'shifali':[89,91,97,94]}
tot=0
Tot_Marks=Marks.copy()
for key,val in Marks.items():
   tot=sum(val)
   Tot_Marks[key]=tot
print(Tot_Marks)
max=0
Topper= ''
for key,val in Tot_Marks.items():
   if val>max:
      max=val
      Topper=key
```

```
print("Topper is :",Topper,"with marks=",max)
```

3)#Function to calculate the factorial

```
from math import pi
def fact(n):
    f=1
    for i in range(1,n+1):
        f=f*i
    return f
```

#Function to calculate the expenent value

```
def exp(x,y):
    ans=1
    for i in range(1,y+1):
        ans=ans*x
    return ans
```

#Program to calculate the value of sin using series

```
n = int(input("How many iterations?\n"))
x = int(input("Enter the value of x : "))

a=3
sign=-1
y=x
x=x*(pi/180)
sin=x

for i in range(1,n):
    sin=sin+(exp(x,a)/fact(a))*sign
    sign=sign*(-1)
    a=a+2
print("i = ",i)
print("Sin(",y,") = ",sin)
```

4)#Write a Program that pluralize the each word using regular expression

```
import re
def pluralize(noun):
    if re.search('[sxz]$',noun):
        return re.sub('$','es',noun)
    elif re.search('[^aeioudgkprt]h$',noun):
        return re.sub('$','es',noun)
    elif re.search('[^aeiou]y$',noun):
        return re.sub('y$','ies',noun)
    else:
        return noun + 's'

n=int(input("How many nouns?"))
List=[]
for i in range(n):
    print("Word ",i+1," : ",end='')
    word = input()
    List.append(word)
for i in List:
    print(i,'-',pluralize(i))
```

5)'''Program that stores the information about student like roll no, name & marks

of three subjects. Display the result based on the following criteria

==========

% of Marks Result

==========

>=75.00 Distinction

60.00 to 74.99 First Class

50.00 to 59.99 Second Class

40.00 to 49.99 Pass Class

<=39.99 Fail

```
class Student:
    def __init__(self,rl,nm,lst):
        self.Name=nm
        self.Roll_No=rl
        self.__M=lst
    def Result(self):
        total=self.__M[0]+self.__M[1]+self.__M[2]+self.__M[3]+self.__M[4]
        self.avg=total/5.0
        if(self.__M[0]<40 or self.__M[1]<40 or self.__M[2]<40 or self.__M[3]<40 or self.__M[4]<40):
            self.result="Fail"
        elif(self.avg>=75.00):
            self.result="Distinction"
        elif(self.avg>=60.00 and self.avg<75.00):
            self.result="First Class"
        elif(self.avg>=50.00 and self.avg<60.00):
            self.result="Second Class"
    def Display(self):
        print("Roll No. : ",self.Roll_No)
        print("Name     : ",self.Name)
        i=1
        for m in self.__M:
```

```
            print("Subject",i,":",m)
            i+=1
        print("Result : ",self.result)


print("Enter the details of the student")
r = int(input("Roll Number : "))
n = input("Name : ")
lst=[]
print("Marks of 5 subjects")
for i in range(1,6):
    m = int(input())
    lst.append(m)
std = Student(r,n,lst)
std.Result()
std.Display()
```

6)#Program on operator overloading

```
class Complex:
    def __init__(self,val1,val2):
        self.real=val1
        self.imag=val2

    def Display(self):
        if(self.imag<0):
            print(self.real," - ",self.imag,"i")
        else:
            print(self.real," + ",self.imag,"i")

    def __add__(self,other):
        temp=Complex(0,0)
        temp.real=self.real+other.real
        temp.imag=self.imag+other.imag
        return temp

print("Create First Complex Number")
x = float(input("Real part      : "))
y = float(input("Imaginary part : "))
c1=Complex(x,y)
print("Create Second Complex Number")
x = float(input("Real part      : "))
y = float(input("Imaginary part : "))
c2=Complex(x,y)
c3=Complex(0,0)
c3=c1+c2
c1.Display()
c2.Display()
c3.Display()
```

7)#Program that counts the number of tabs, spaces and newline characters in a file

```
filename='my_file.txt'
with open(filename) as file:
    text=file.read()
    tab_count=0
    space_count=0
    line_count=0
for char in text:
    if char=='\t':
        tab_count+=1
    elif char ==' ':
        space_count+=1
    elif char=='\n':
        line_count+=1
print("No. of Tabs   : ",tab_count)
print("No. of Spaces : ",space_count)
print("No. of Lines  : ",line_count)
```