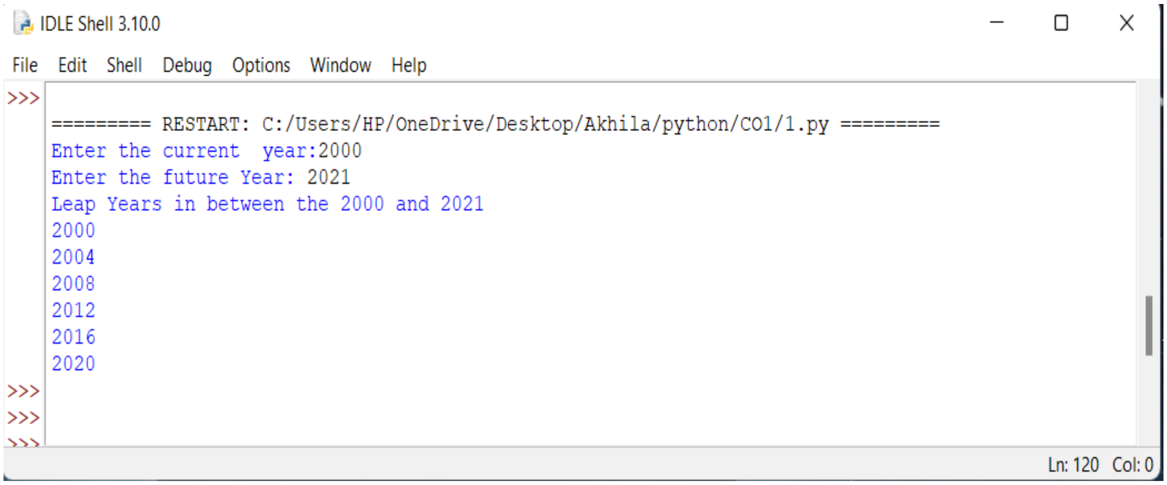
Sl no.:-1

Aim:-Display future leap years from current leap to a finial year entered by the users.

Program code:-

```
currentYear=int(input("Enter the current  year:"))
futureyear=int(input("Enter the future Year: "))
print("Leap Years in between the",currentYear,"and",futureyear)
for i in range(currentYear,futureyear):
   if i%4==0:
      print(i)
```

Output:-



```
>>>
========= RESTART: C:/Users/HP/OneDrive/Desktop/Akhila/python/CO1/1.py =========
Enter the current  year:2000
Enter the future Year: 2021
Leap Years in between the 2000 and 2021
2000
2004
2008
2012
2016
2020
>>>
>>>
>>>
```

Sl no:-2

Aim:- List comprehension:-

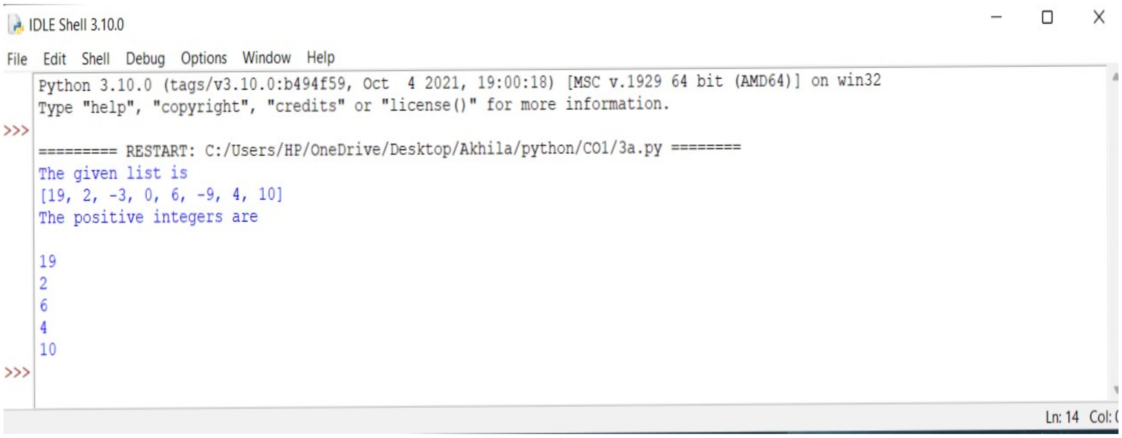
a. Generate positive list of numbers from a give list of integers.
b. square of N numbers.
c. Form a list of vowels selected from a give word.
d. List ordinal values of each elements of a word.

a.

Program code:-

```
print("The given list is ")
list=[19,2,-3,0,6,-9,4,10]
print(list)
print("The positive integers are \n ")
for i in list:
    if i>0:
        print(i)
```

Output:-



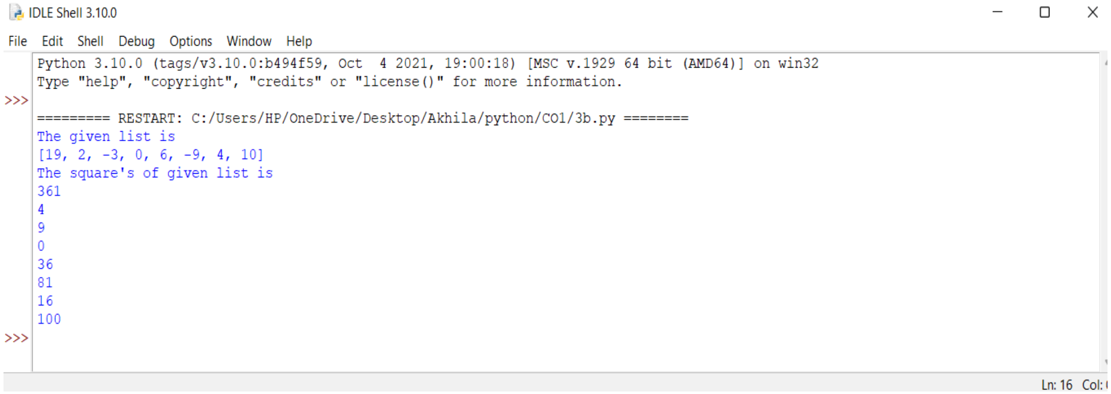
```
Python 3.10.0 (tags/v3.10.0:b494f59, Oct  4 2021, 19:00:18) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========= RESTART: C:/Users/HP/OneDrive/Desktop/Akhila/python/CO1/3a.py ========
The given list is
[19, 2, -3, 0, 6, -9, 4, 10]
The positive integers are

19
2
6
4
10
>>>
```

b.

Program code:-

```
print("The given list is ")
list=[19,2,-3,0,6,-9,4,10]
print(list)
print("The square's of given list is  ")
for i in list:
    sqr=i*i
    print(sqr)
```

Output:-



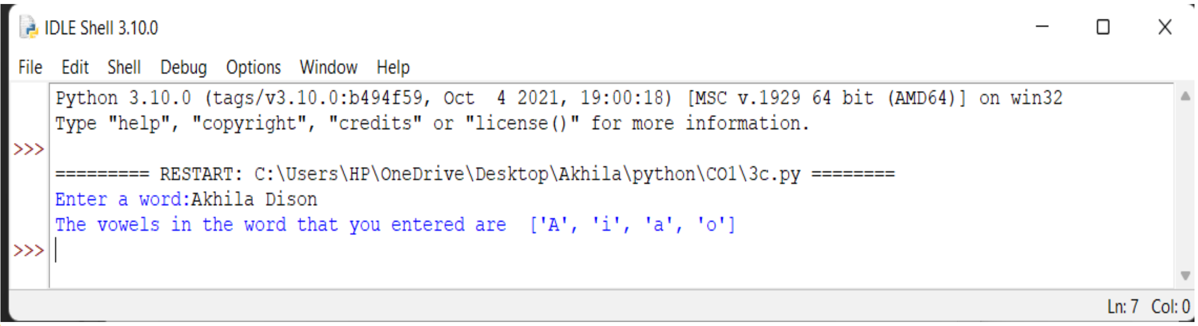
```
Python 3.10.0 (tags/v3.10.0:b494f59, Oct  4 2021, 19:00:18) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========= RESTART: C:/Users/HP/OneDrive/Desktop/Akhila/python/CO1/3b.py ========
The given list is
[19, 2, -3, 0, 6, -9, 4, 10]
The square's of given list is
361
4
9
0
36
81
16
100
>>>
```

c.

Program code:-

```
word=input("Enter a word:")
list=['A','E','I','O','U','a','e','i','o','u']
temp=[]
for i in word:
    if (i in list and i not in temp):
        temp.append(i)
print("The vowels in the word that you entered are ",temp)
```

Output:-



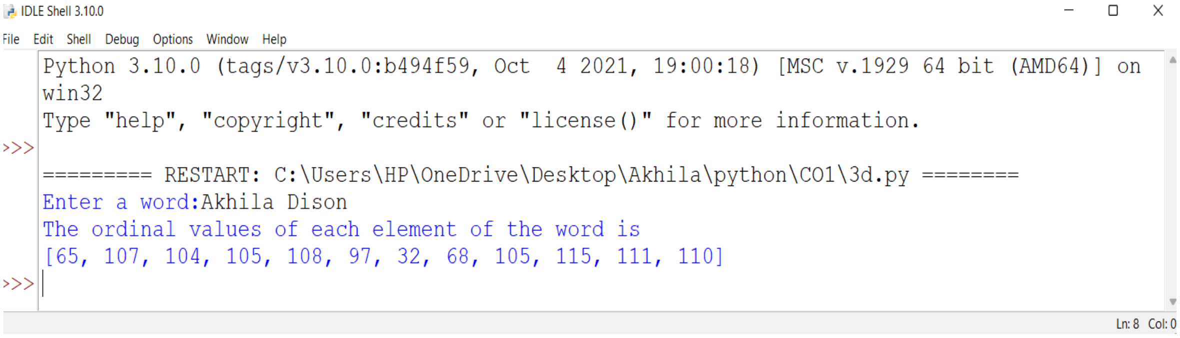
```
Python 3.10.0 (tags/v3.10.0:b494f59, Oct  4 2021, 19:00:18) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========= RESTART: C:\Users\HP\OneDrive\Desktop\Akhila\python\CO1\3c.py ========
Enter a word:Akhila Dison
The vowels in the word that you entered are  ['A', 'i', 'a', 'o']
>>>
```

d.

Program code:-

```
word=input("Enter a word:")
temp=[]
print("The ordinal values of each element of the word is ")
for i in word:
    x=ord(i)
    temp.append(x)
print(temp)
```

Output:-



```
Python 3.10.0 (tags/v3.10.0:b494f59, Oct  4 2021, 19:00:18) [MSC v.1929 64 bit (AMD64)] on
win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========= RESTART: C:\Users\HP\OneDrive\Desktop\Akhila\python\CO1\3d.py ========
Enter a word:Akhila Dison
The ordinal values of each element of the word is
[65, 107, 104, 105, 108, 97, 32, 68, 105, 115, 111, 110]
>>>
```

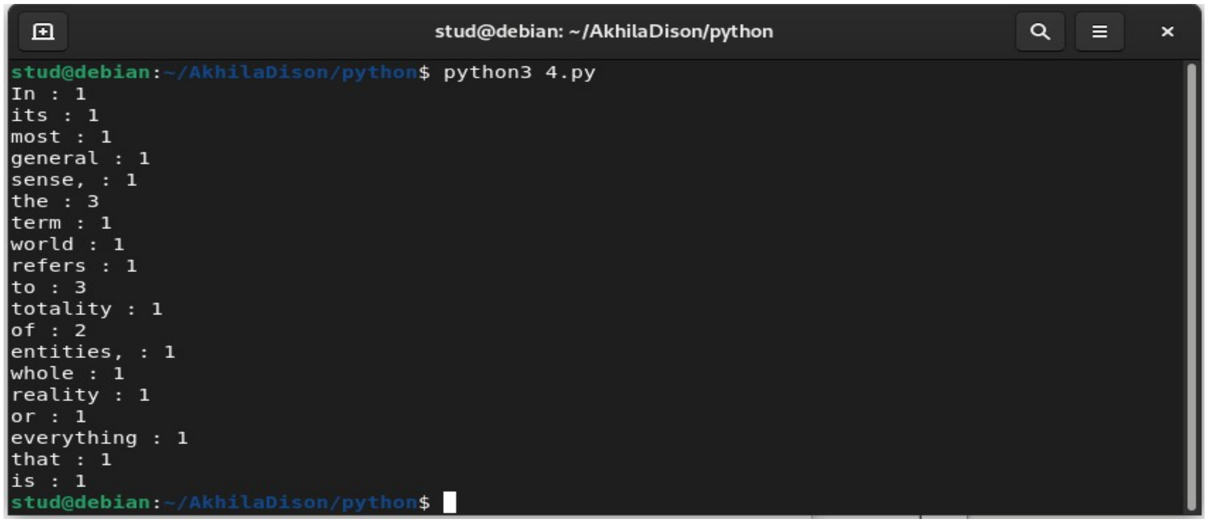
Sl no.:-3

Aim:-Count the occurrence of each word in a line of text.

Program code:-

```
k="In its most general sense, the term world refers to the totality of entities, to the whole of reality or to everything that is"
h=[]
for i in k.split(" "):
        if i not in h:
                h.append(i)
for i in h:
        print(i,":",k.split(" ").count(i))
```

Output:-



```
stud@debian:~/AkhilaDison/python$ python3 4.py
In : 1
its : 1
most : 1
general : 1
sense, : 1
the : 3
term : 1
world : 1
refers : 1
to : 3
totality : 1
of : 2
entities, : 1
whole : 1
reality : 1
or : 1
everything : 1
that : 1
is : 1
stud@debian:~/AkhilaDison/python$
```

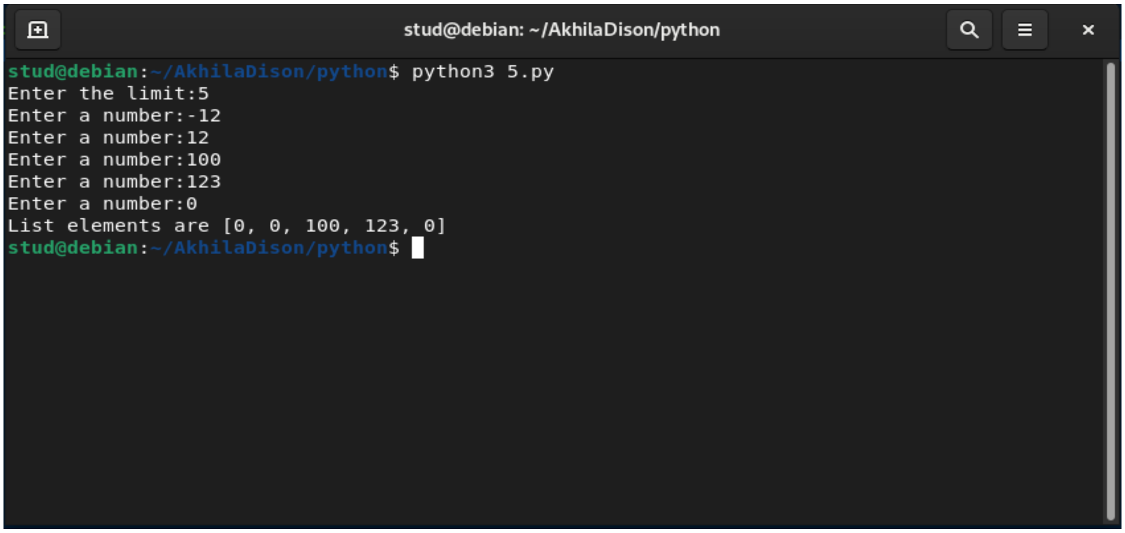
Sl no.:-4

Aim:-Prompt the user for a list of integers.For all values greater than 100,store ’over’ instead.

Program code:-

```
integers=int(input("Enter the limit:"))
temp=[]
over=0
for i in range(0,integers):
        user=int(input("Enter a number:"))
        if(user>=100):
                temp.append(user)
        else:
                temp.append(over)
print("List elements are",temp)
```

Output:-



```
stud@debian:~/AkhilaDison/python$ python3 5.py
Enter the limit:5
Enter a number:-12
Enter a number:12
Enter a number:100
Enter a number:123
Enter a number:0
List elements are [0, 0, 100, 123, 0]
stud@debian:~/AkhilaDison/python$ 
```

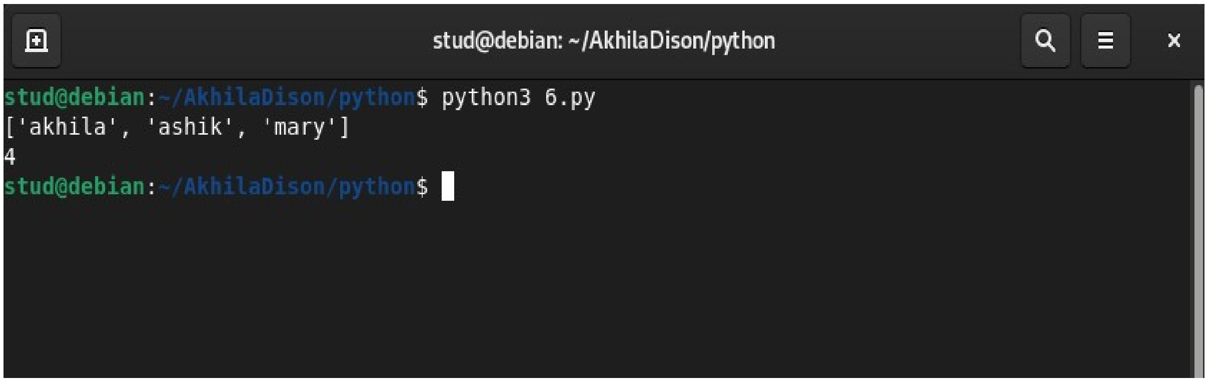
Sl no.:-5

Aim:-store a list of first names.count the occurence of “a” within the list.

Program code:-

```
list= ['akhila','ashik','mary']
count=0
for i in list:
  value= i.count('a')
  count=count+value
print(list)
print(count)
```

Output:-



```
stud@debian:~/AkhilaDison/python$ python3 6.py
['akhila', 'ashik', 'mary']
4
stud@debian:~/AkhilaDison/python$ 
```

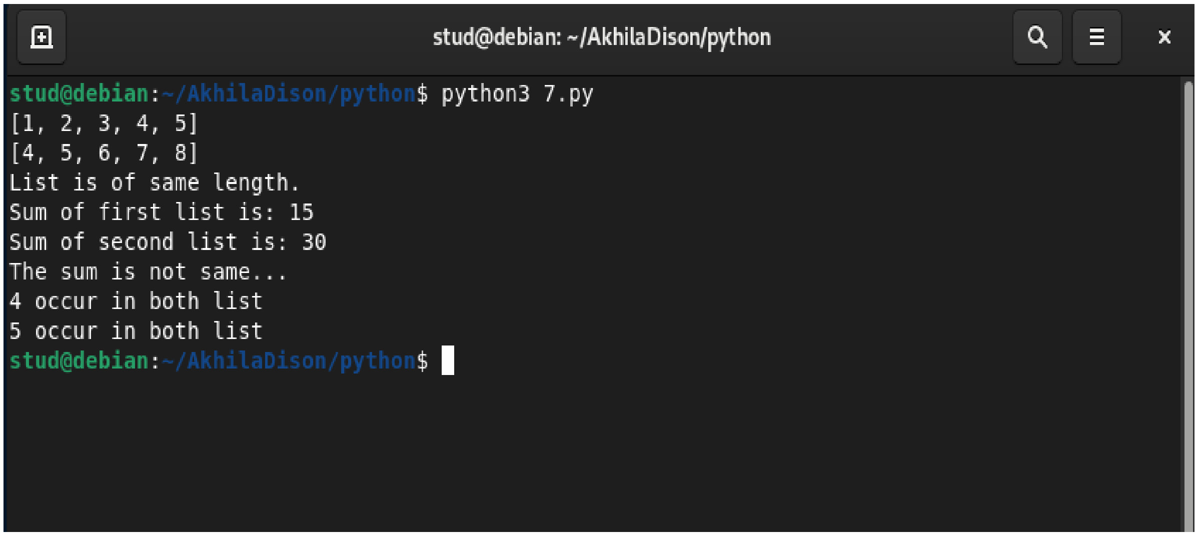
Sl no.:- 6

Aim:- Enter 2list of first integers.Check
a.whether list are of same length.
b.Whether list sums to same value.
b.whether any value occur in both.

Program code:-

```
#whether list are of same length.
list1=[1,2,3,4,5]
list2=[4,5,6,7,8]
print(list1)
print(list2)
x=len(list1)
y=len(list2)
if(x==y):
 print("List is of same length.")
else:
 print("List is not same length.")

#Whether list sums to same value.
sum1=0
sum2=0
for i in list1:
        sum1=sum1+i
print("Sum of first list is:",sum1)
for j in list2:
        sum2=sum2+j
print("Sum of second list is:",sum2)
if(sum1==sum2):
        print("The sum is same....")
else:
        print("The sum is not same...")

 #whether any value occur in both.
for i in list1:
        if i in list2:
                print(i,"occur in both list")
```

Output:-



```
stud@debian:~/AkhilaDison/python$ python3 7.py
[1, 2, 3, 4, 5]
[4, 5, 6, 7, 8]
List is of same length.
Sum of first list is: 15
Sum of second list is: 30
The sum is not same...
4 occur in both list
5 occur in both list
stud@debian:~/AkhilaDison/python$ 
```

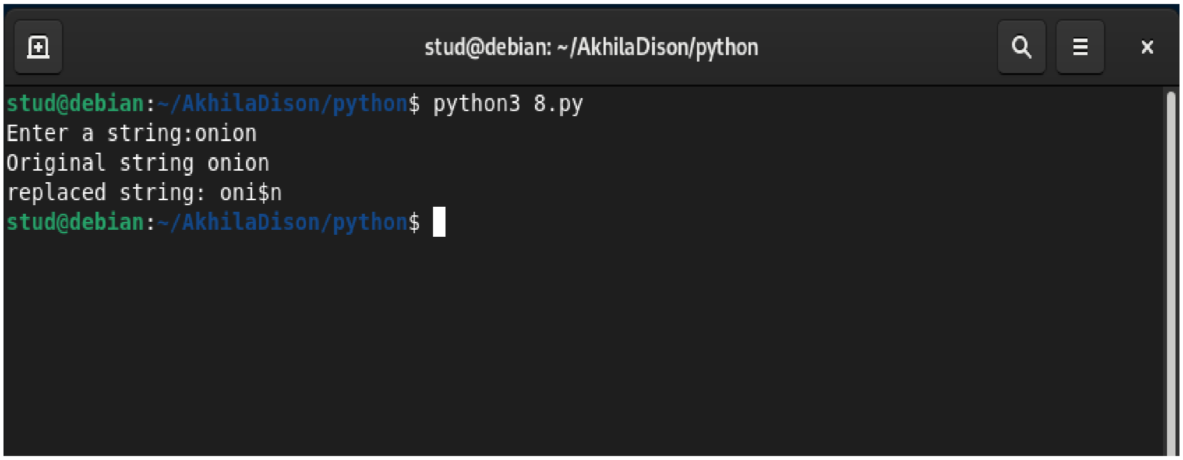
Sl no:-7

Aim:-Get a stringfrom an input string where all occurrence of first charater replace with ‘$’,except first charater.
[eg:-onion->oni$n]

Programe code:-

```
s=input("Enter a string:")
print("Original string",s)
char=s[0]
s=s.replace(char,'$')
s=char+s[1:]
print("replaced string:",s)
```

Output:-



```
stud@debian:~/AkhilaDison/python$ python3 8.py
Enter a string:onion
Original string onion
replaced string: oni$n
stud@debian:~/AkhilaDison/python$ 
```

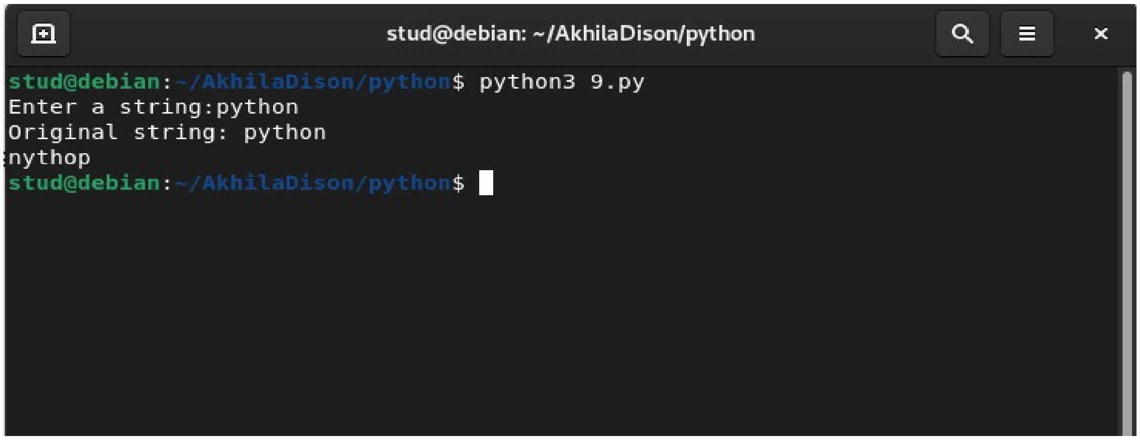
Sl no.:-8

Aim:-Create a string from give string where first and last charater exchanged.
[eg:-python->nythop]

Program Code:-

```
s=input("Enter a string:")
print("Original string:",s)
sf=s[0]
sl=s[-1]
n=len(s)
ns=sl+s[1:n-1]+sf
print(ns)
```

Output:-



```
stud@debian:~/AkhilaDison/python$ python3 9.py
Enter a string:python
Original string: python
nythop
stud@debian:~/AkhilaDison/python$
```

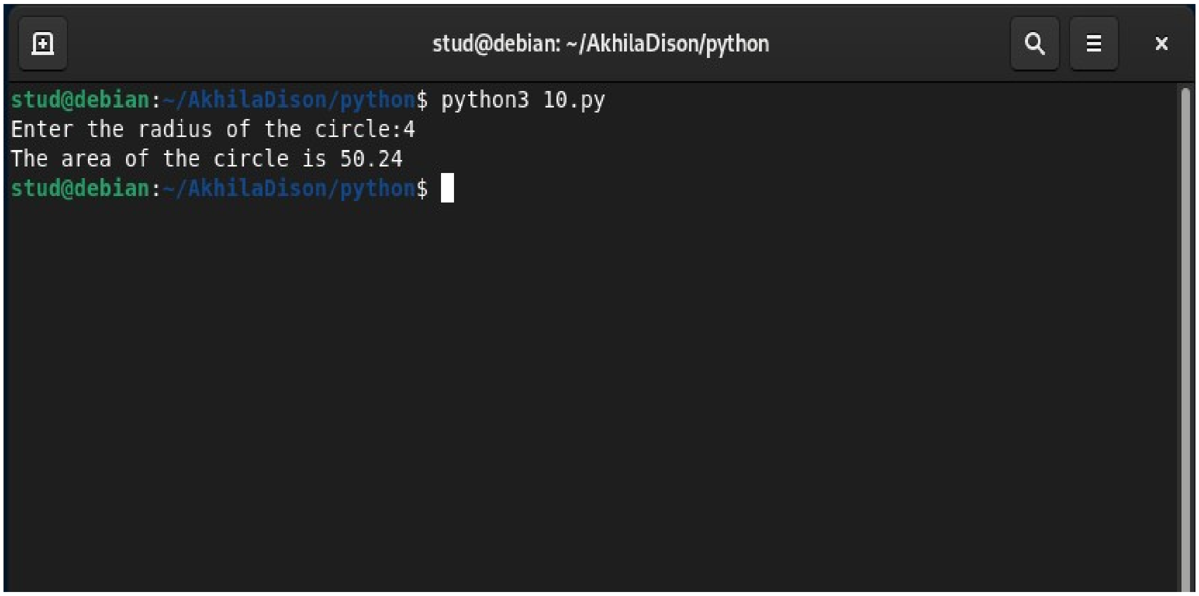
Sl no.:-9

Aim:-Accept the radius from the user and find the area of circle.

Program Code:-

```
y=int(input("Enter the radius of the circle:"))
a=3.14*y*y
print("The area of the circle is",a)
```

Output:-



```
stud@debian:~/AkhilaDison/python$ python3 10.py
Enter the radius of the circle:4
The area of the circle is 50.24
stud@debian:~/AkhilaDison/python$ 
```

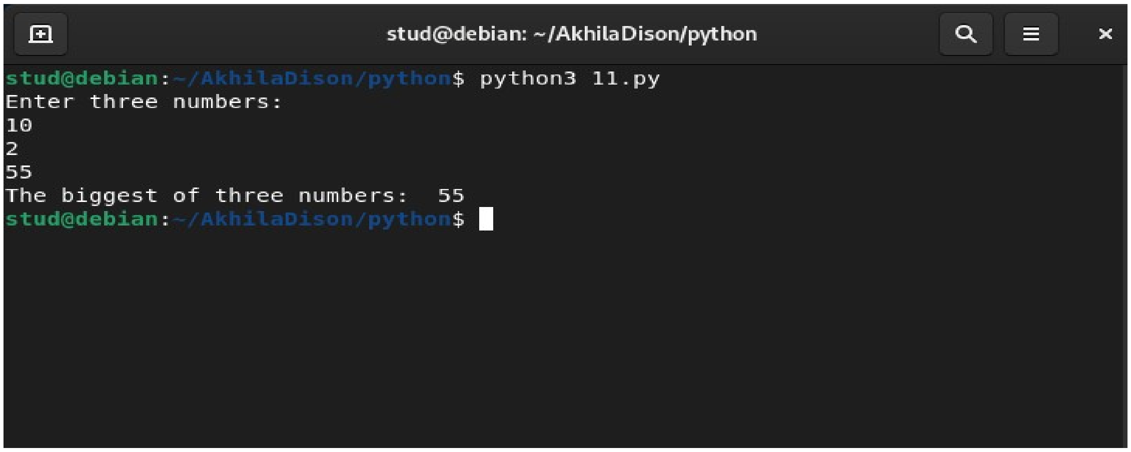
Sl no.:-10

Aim:-find the greatest of 3 entered.

Program code:-

```
print("Enter three numbers: ")
a=int(input())
b=int(input())
c=int(input())
if a>b and a>c:
        print("The biggest of three numbers: ",a)
if b>a and b>c:
        print("The biggest of three numbers: ",b)
if c>a and c>b:
        print("The biggest of three numbers: ",c)
```

Output:-



```
stud@debian:~/AkhilaDison/python$ python3 11.py
Enter three numbers:
10
2
55
The biggest of three numbers:  55
stud@debian:~/AkhilaDison/python$
```

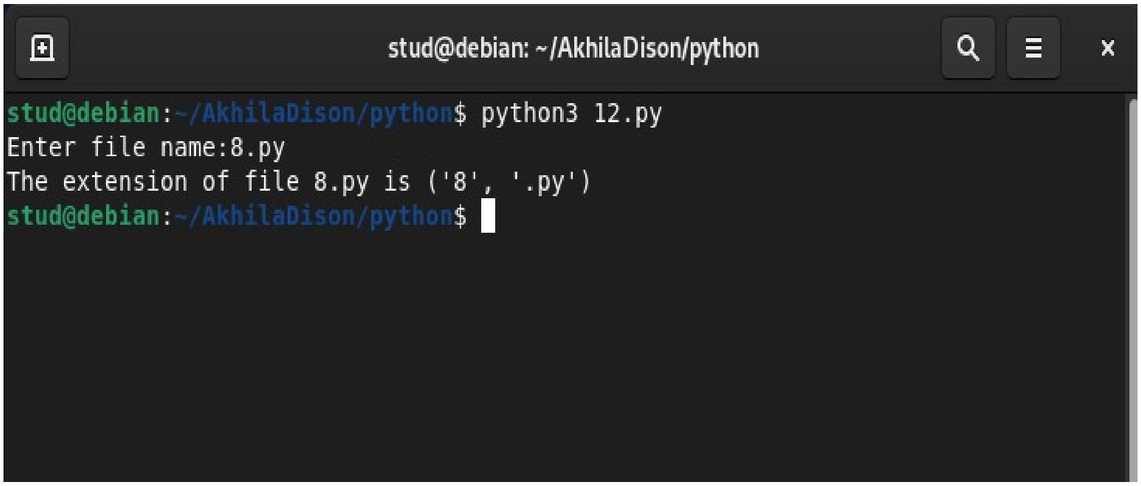
Sl no.:-11

Aim:-Acept file name from user and print extention of that.

Program code:-

```
import os
a=input("Enter file name:")
print("The extension of file",a,"is",os.path.splitext(a))
```

Output:-



```
stud@debian:~/AkhilaDison/python$ python3 12.py
Enter file name:8.py
The extension of file 8.py is ('8', '.py')
stud@debian:~/AkhilaDison/python$
```

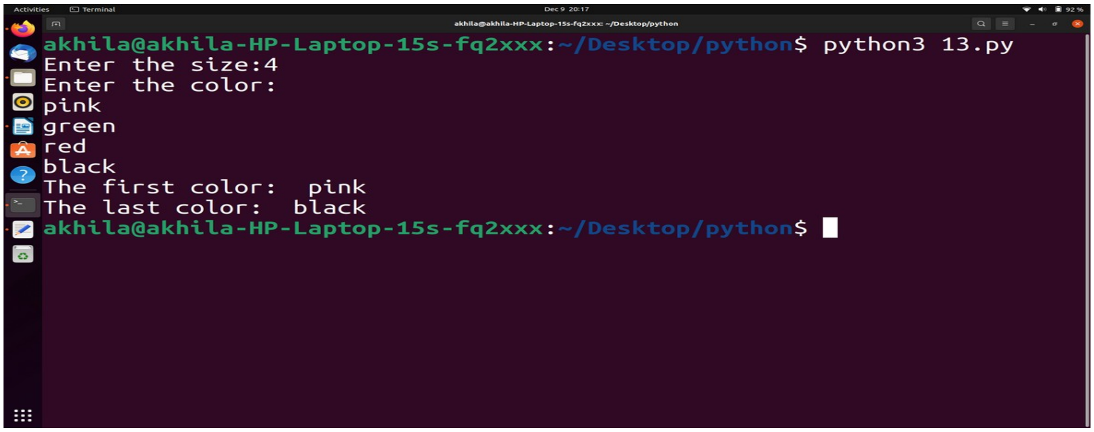
Sl no.:-12

Aim:-Create a list of colours from comma seperated color names entered by users.Display first and last color.

Program code:-

```
n=int(input("Enter the size:"))
lt = []
l=[]
print("Enter the color:")
for i in range(0,n):
        lt = input()
        l.append(lt)
print("The first color: ",l[0])
print("The last color: ",l[n-1])
```

Output:-



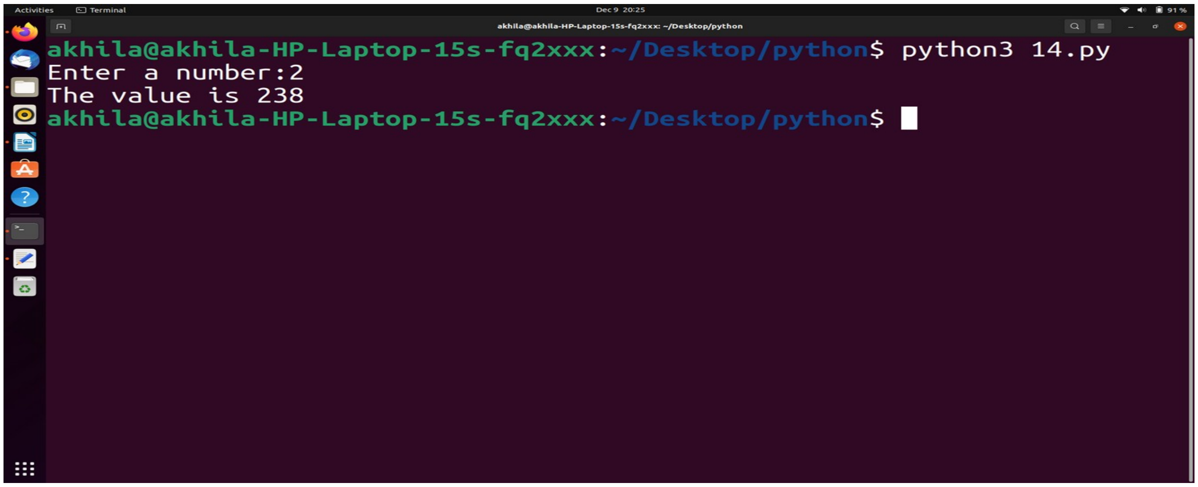
```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$ python3 13.py
Enter the size:4
Enter the color:
pink
green
red
black
The first color:  pink
The last color:  black
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$ 
```

Sl no:-13

Aim:-Accept an integer and compute n+nn+nnn.
Program code:-

```
i=int(input("Enter a number:"))
value=i+((i*10)+i)+((i*100)+(i+10)+i)
print("The value is",value)
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$ python3 14.py
Enter a number:2
The value is 238
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$
```

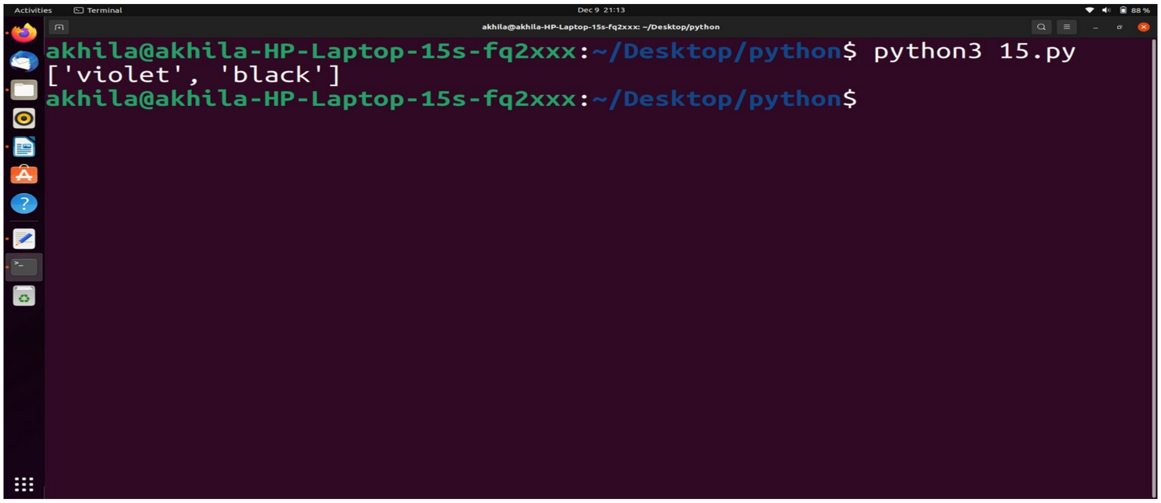
Sl no.:-14

Aim:-Print out all colors from color-list 1 not contained in color-list2

Program code:-

```
list1= ['red', 'violet', 'black']
list2= ['blue', 'pink', 'red']
list3=[]
for i in list1:
        if i not in list2:
                list3.append(i)
print(list3)
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$ python3 15.py
['violet', 'black']
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$
```

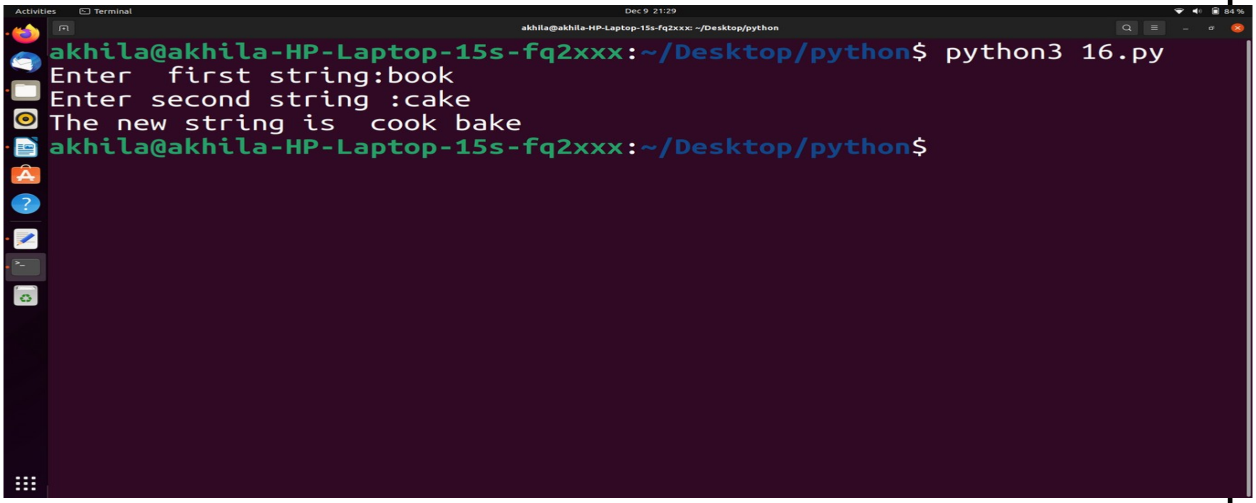
Sl no.:-15

Aim:-Create a single string seperated with space from two strings by swapping the charater at position 1.

Program code:-

```
a=input("Enter string 1:")
b=input("Enter string 2:")
a1=b[0]+a[1:]
b1=a[0]+b[1:]
c=a1+' '+b1
print(c)
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$ python3 16.py
Enter  first string:book
Enter second string :cake
The new string is  cook bake
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$
```

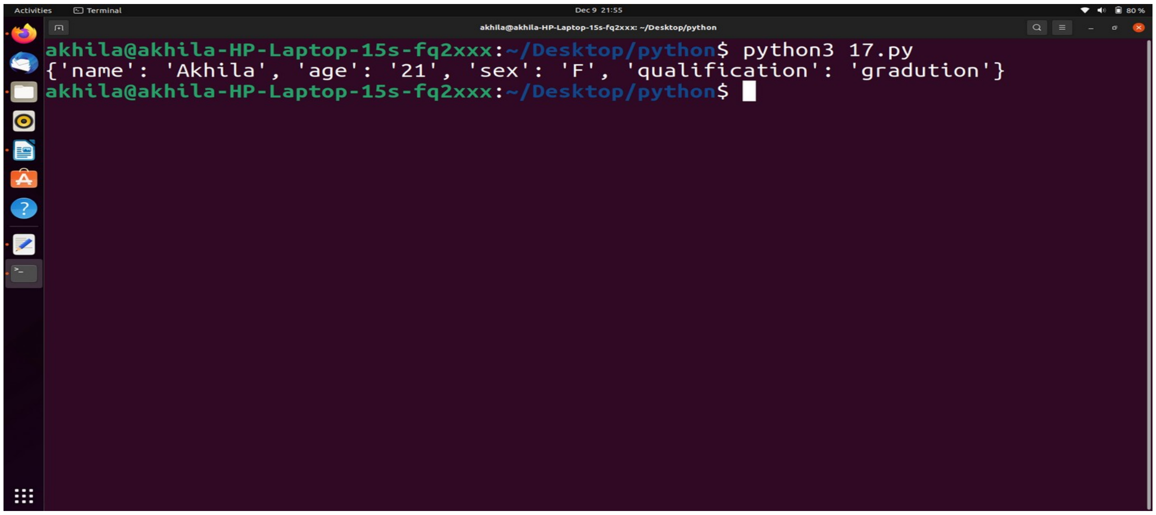
Sl no.:-16

Aim:-Sort dictionary in asending and decending order.

Program code:-

```
d1={"name":"Akhila","age":"21"}
d2={"sex":"F","qualification":"gradution"}
d1.update(d2)
print(d1)
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$ python3 17.py
{'name': 'Akhila', 'age': '21', 'sex': 'F', 'qualification': 'gradution'}
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$ 
```

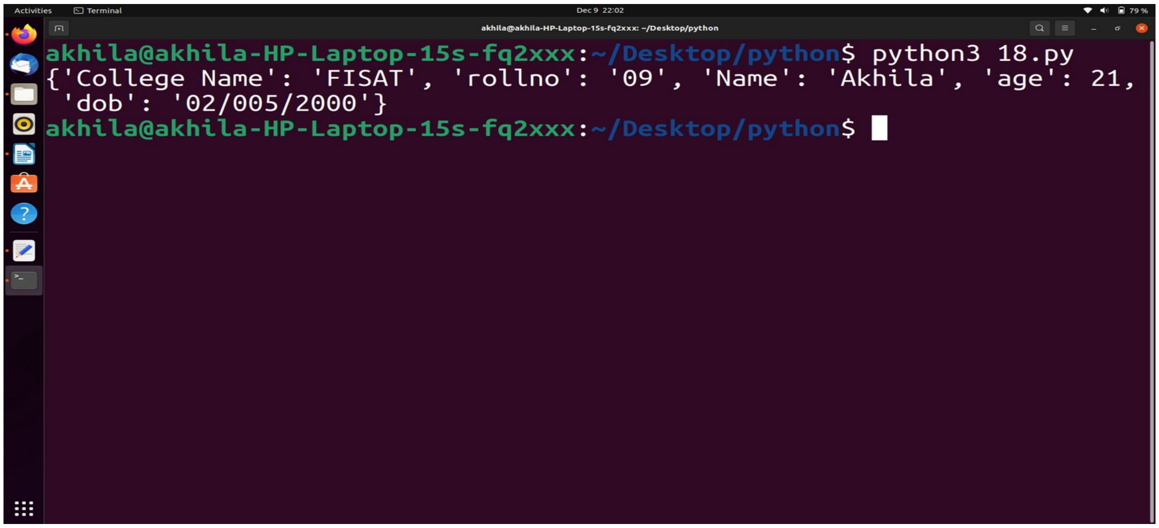
Sl no.:-17

Aim:-merge two dictionary

Program code:-

```
thisdict ={
"Name": "Akhila",
"age": 21,
"dob": "02/005/2000"
}
d={"College Name":'FISAT' , "rollno":'09'}
d.update(thisdict)
print(d)
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$ python3 18.py
{'College Name': 'FISAT', 'rollno': '09', 'Name': 'Akhila', 'age': 21,
 'dob': '02/005/2000'}
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$ 
```

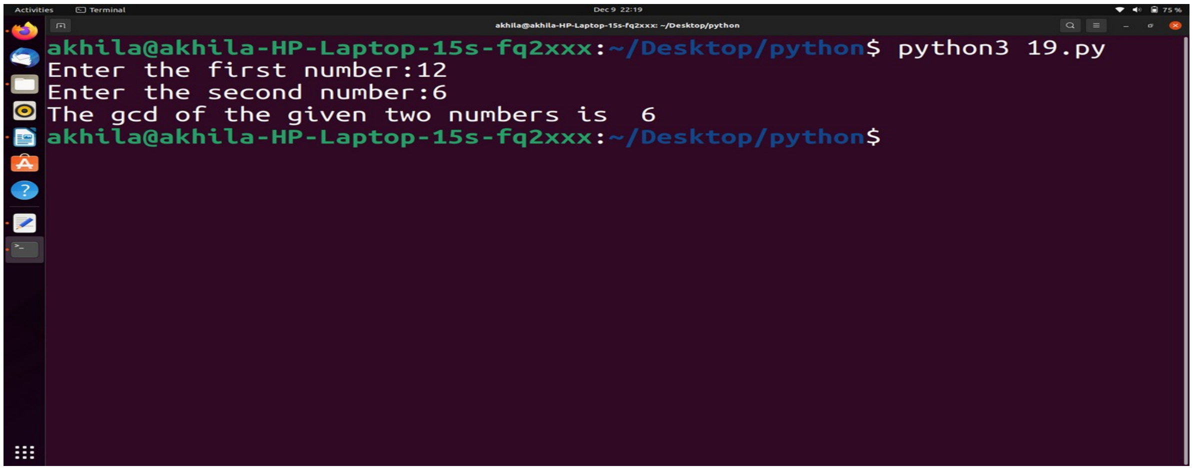
Sl no.:-18

Aim:-find GCD of 2 numbers

Program Code:-

```
x=int(input("Enter the first number:"))
y=int(input("Enter the second number:"))
z=max(x,y)
for i in range(1,z+1):
    if(x%i==0) and (y%i==0):
        gcd=i
print("The gcd of the given two numbers is ",gcd)
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$ python3 19.py
Enter the first number:12
Enter the second number:6
The gcd of the given two numbers is  6
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$
```

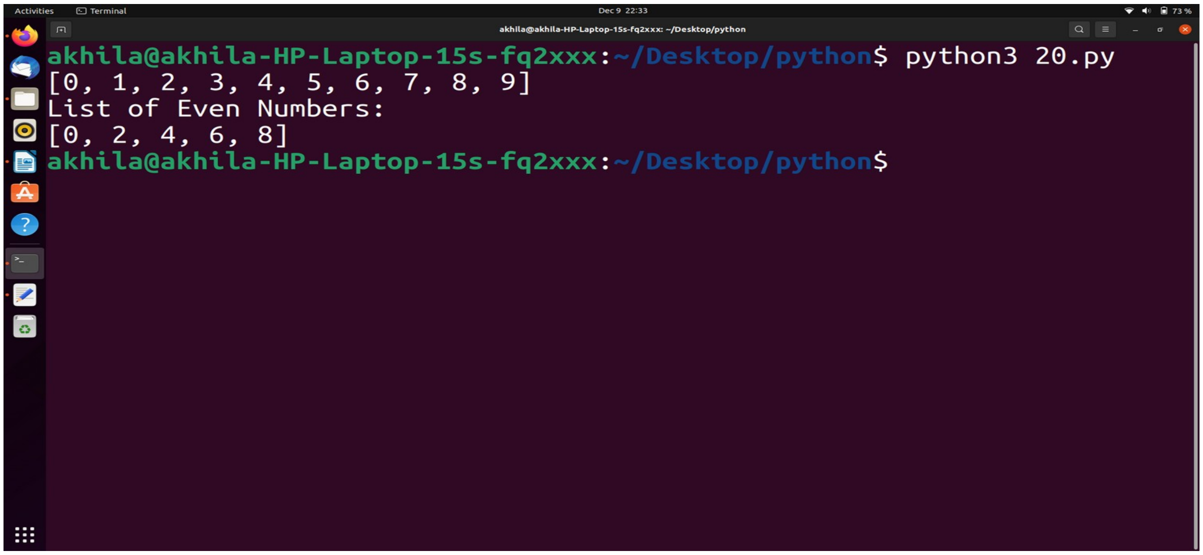
Sl no:-19

Aim:-From a list of integers ,create a list removing even numbers.

Program code:-

```
l=[0,1,2,3,4,5,6,7,8,9]
print(l)
li=[]
print("List of Even Numbers:")
for i in l:
    if(i%2==0):
        li.append(i)
print(li)
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$ python3 20.py
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
List of Even Numbers:
[0, 2, 4, 6, 8]
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python$
```

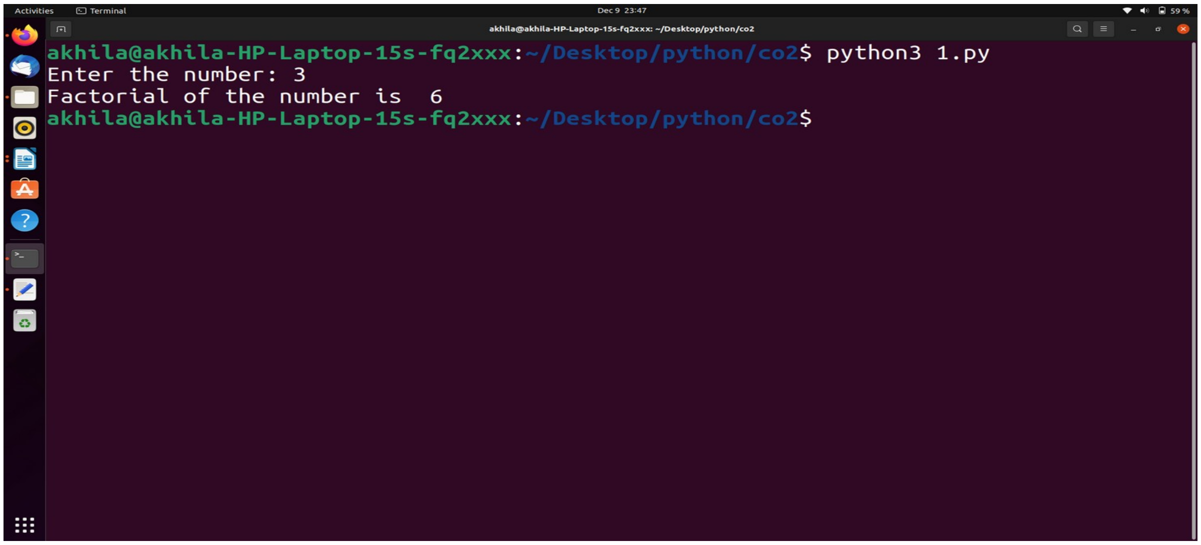
Sl no.:-20

Aim:-Program to find the factorial of a number.

Program code:-

```
num=int(input("Enter the number: "))
fact=1
for i in range(1,num+1):
        fact=fact*i
print("Factorial of the number is ",fact)
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$ python3 1.py
Enter the number: 3
Factorial of the number is  6
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$
```

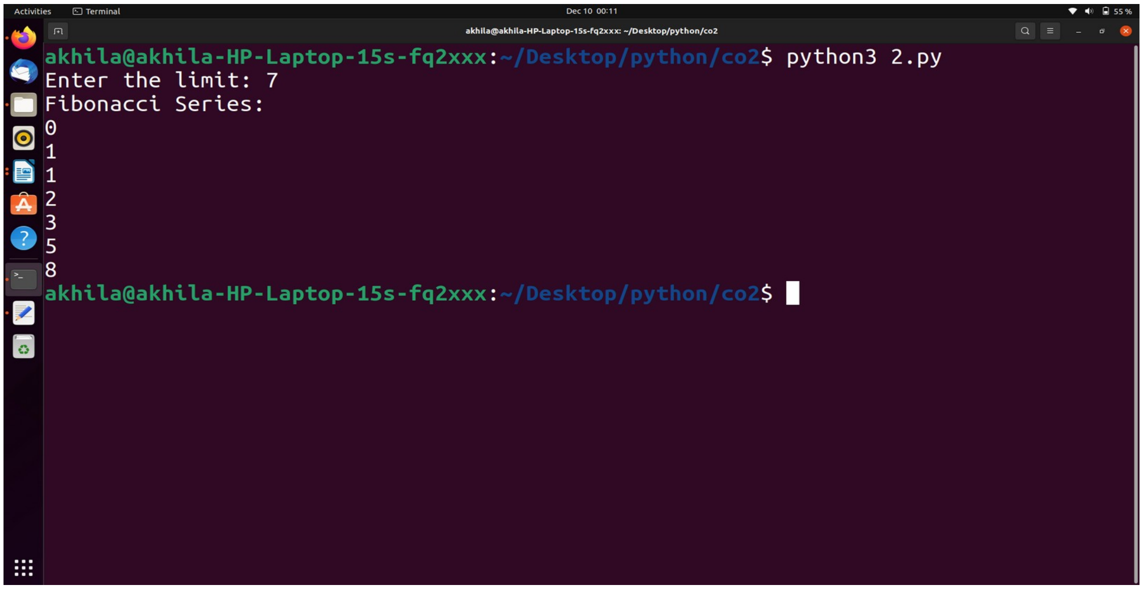
Sl no.:-21

Aim:-Generate Fibonacci series of N terms.

Program Code:-

```
n=int(input("Enter the limit: "))
a=0
b=1
c=0
print("Fibonacci Series:")
print(a)
print(b)
for i in range(3,n+1):
        c=a+b
        print(c)
        a=b
        b=c
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$ python3 2.py
Enter the limit: 7
Fibonacci Series:
0
1
1
2
3
5
8
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$
```

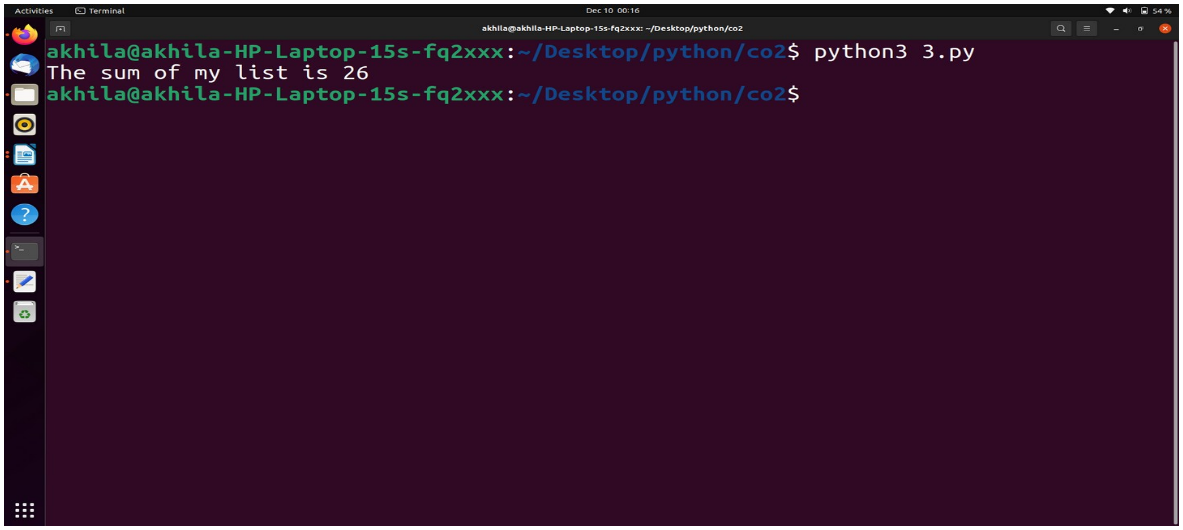
Sl no.:-22

Aim:-Find the sum of all items in a list.

Program code:-

```
def sum_of_list(l):
  total = 0
  for val in l:
    total = total+val
  return total
my_list = [3,5,7,9,2]
print("The sum of my list is", sum_of_list(my_list))
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$ python3 3.py
The sum of my list is 26
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$
```

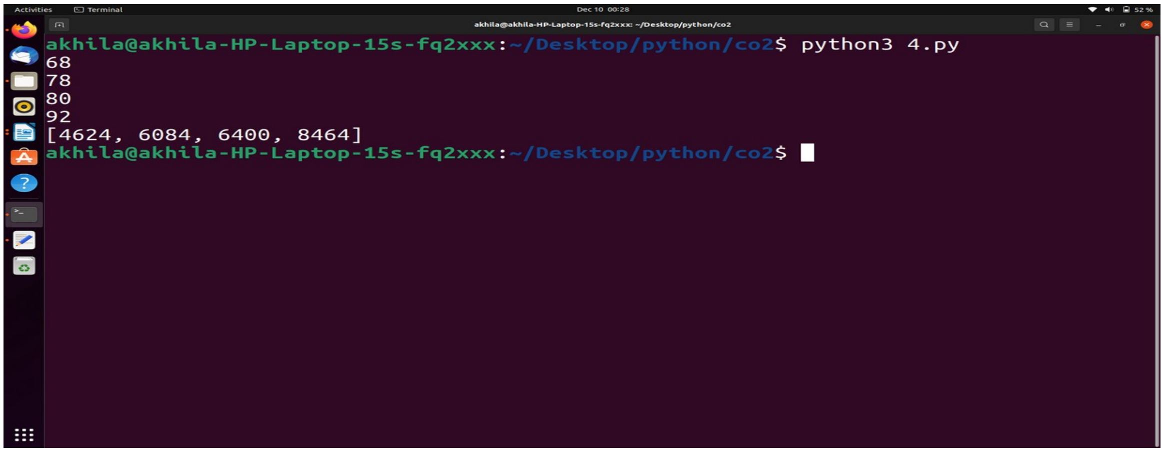
Sl no.:-23

Aim:-Generate a list of 4 digit number in a give range with all their digits even and the number is a perfect square.

Program code:-

```
limit1=4286
limit2=8642
list1=[]
for i in range(limit1,limit2):
    j=i
    digit=[]
    while(i!=0):
        digit.append(i%10)
        i=int(i/10)
    count=0
    for n in digit:
        if n%2==0:
            count=count+1
    if count==4:
        for k in range(31,100):
            if((k**2)==j):
                list1.append(j)
                print(k)
    print(list1)
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$ python3 4.py
68
78
80
92
[4624, 6084, 6400, 8464]
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$ 
```

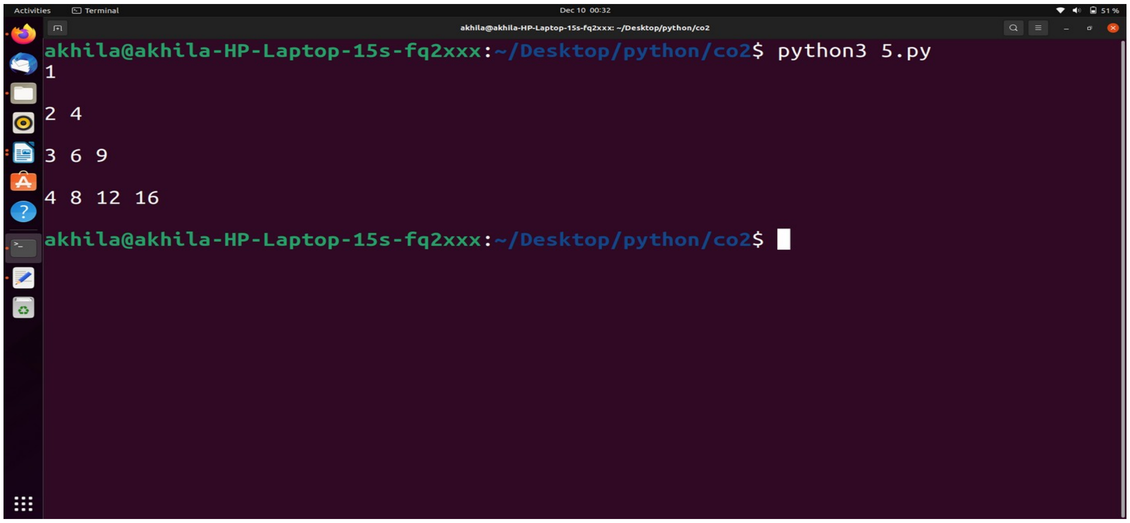
Sl no:-24

Aim:-Display the given pyramid with step number accepted from user.
Eg=4
1
2 4
3 6 9
4 8 12 16

Program code:-

```
    for i in range(1,5):
        for j in range(1,i+1):
            print(i*j,end=" ")
        print("\n")
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$ python3 5.py
1

2 4

3 6 9

4 8 12 16

akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$ 
```

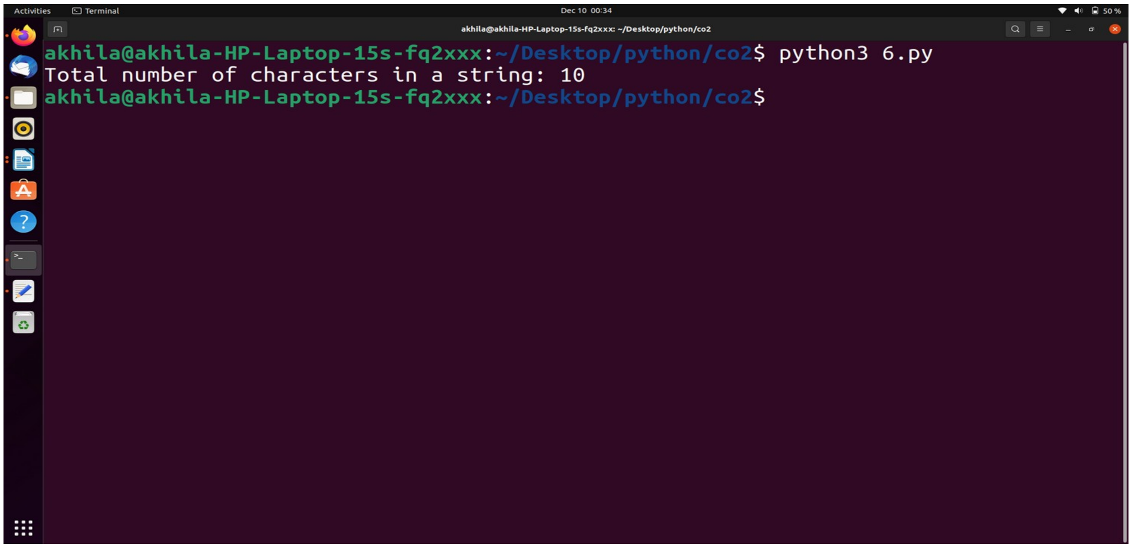
Sl no.:-25

Aim:-Count the number of charater in a string.

Program Code:-

```
string = "hello world";
count = 0;
for i in range(0, len(string)):
    if(string[i] != ' '):
        count = count + 1;
print("Total number of characters in a string: " + str(count));
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$ python3 6.py
Total number of characters in a string: 10
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$
```

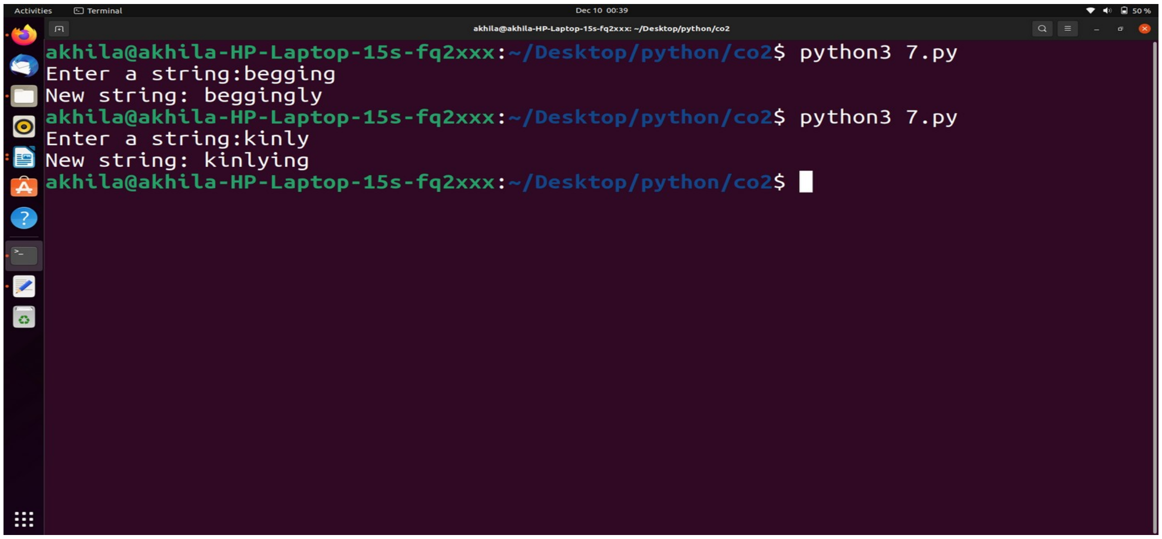
Sl no.:-26

Aim:-Add ‘ing’at the end of a given string.If it already end with ‘ing’,then add ’ly’.

Program code:-

```
s=input("Enter a string:")
if s[-3:]=='ing':
  s=s+'ly'
else:
  s=s+'ing'
print("New string:",s)
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$ python3 7.py
Enter a string:begging
New string: beggingly
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$ python3 7.py
Enter a string:kinly
New string: kinlying
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$
```

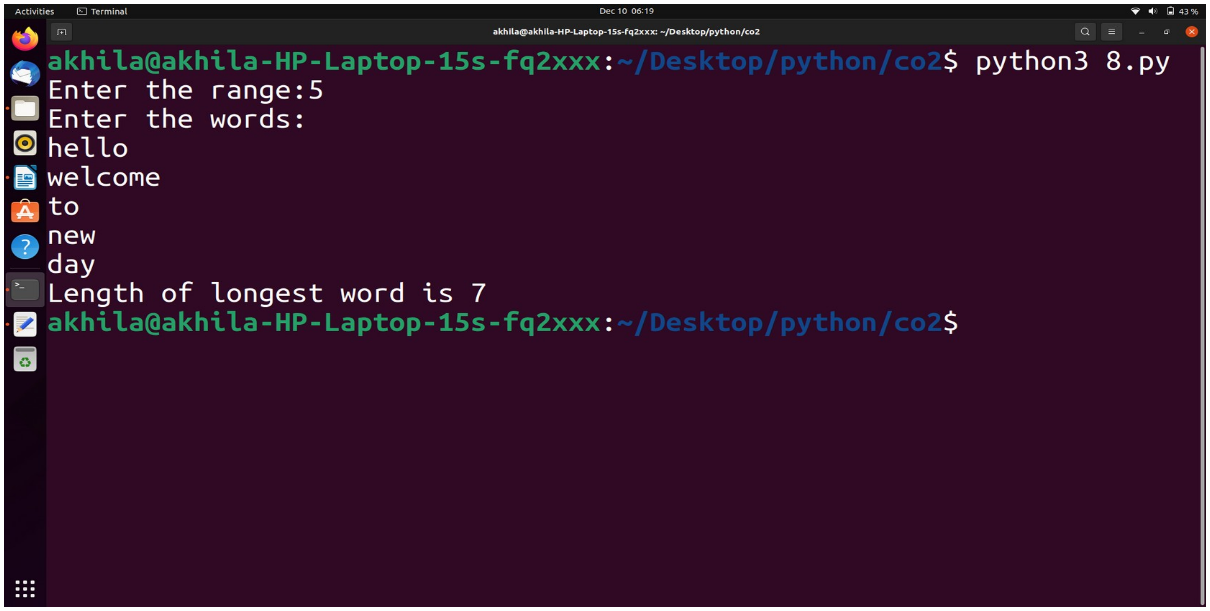
Sl no:-27

Aim:-Accept a list of words and return length of longest word.

Program code:-

```
l1=[]
num=int(input("Enter the range:"))
print("Enter the words:")
for i in range(0,num):
  l1.append(input(""))
longest=l1[0]
for i in range(1,num):
  if(len(l1[i])>len(longest)):
    longest=l1[i]
print("Length of longest word is",len(longest))
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$ python3 8.py
Enter the range:5
Enter the words:
hello
welcome
to
new
day
Length of longest word is 7
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$
```

Sl no.:-28

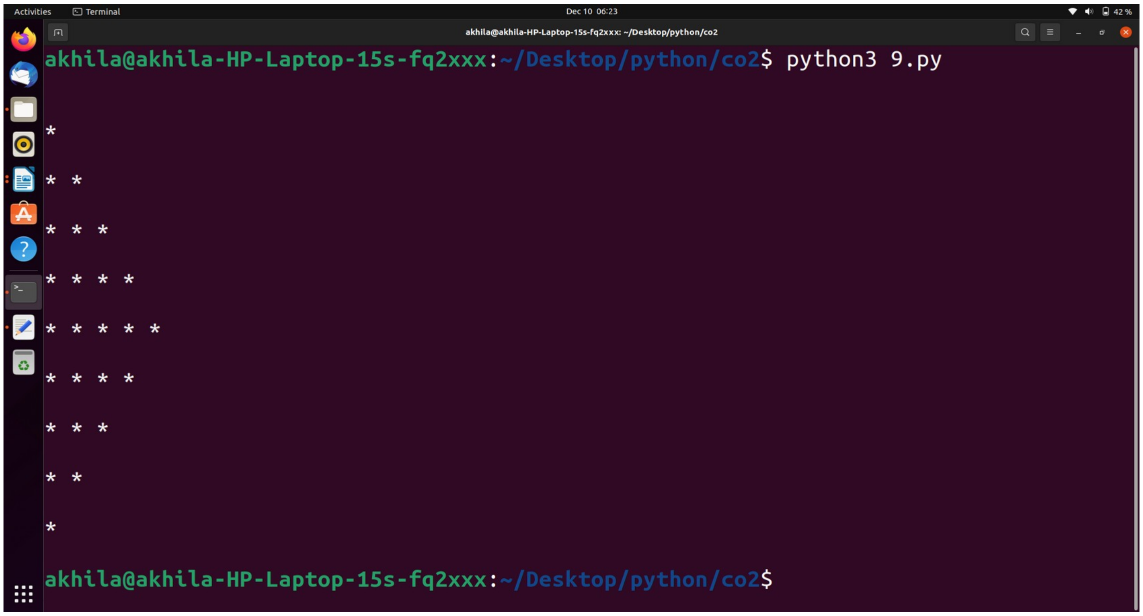
Aim:-Construct the pattern using nested loop**.**

```
*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*
```

Program code:-

```
for i in range(0,5):
        for j in range(0,i):
                print("*",end=" ")
        print("\n")
for i in range(5,0,-1):
        for j in range(0,i):
                print("*",end=" ")
        print("\n")
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$ python3 9.py


*

* *

* * *

* * * *

* * * * *

* * * *

* * *

* *

*

akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$
```

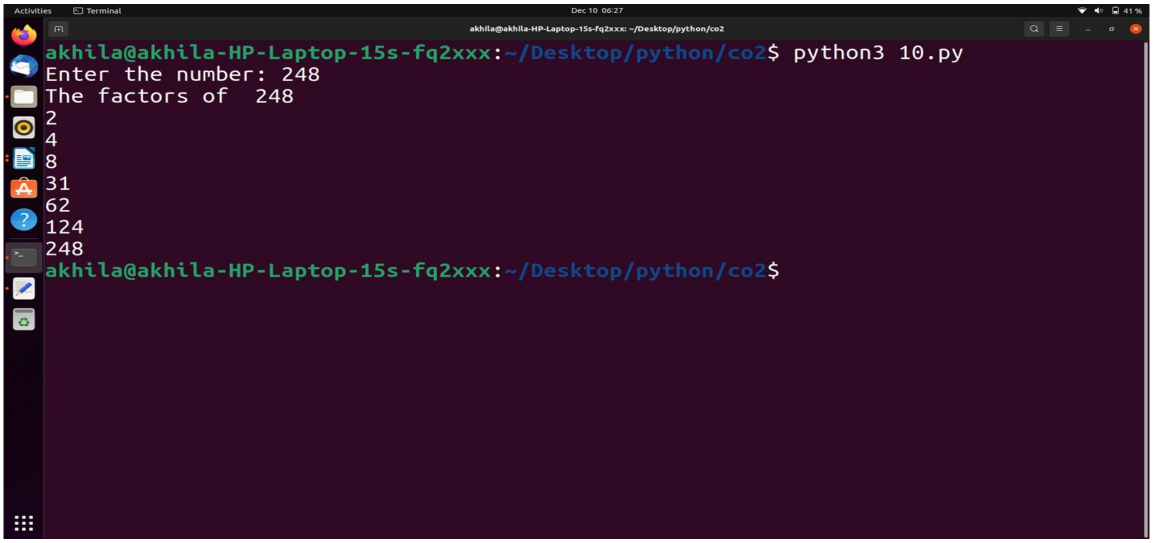
Sl no:-29

Aim:-Generate all factors of a number.

Program code:-

```
n=int(input("Enter the number: "))
i=2
print("The factors of ",n)
while i<=n:
    if (n % i==0):
        print(i)
    i = i + 1
```

Output:-

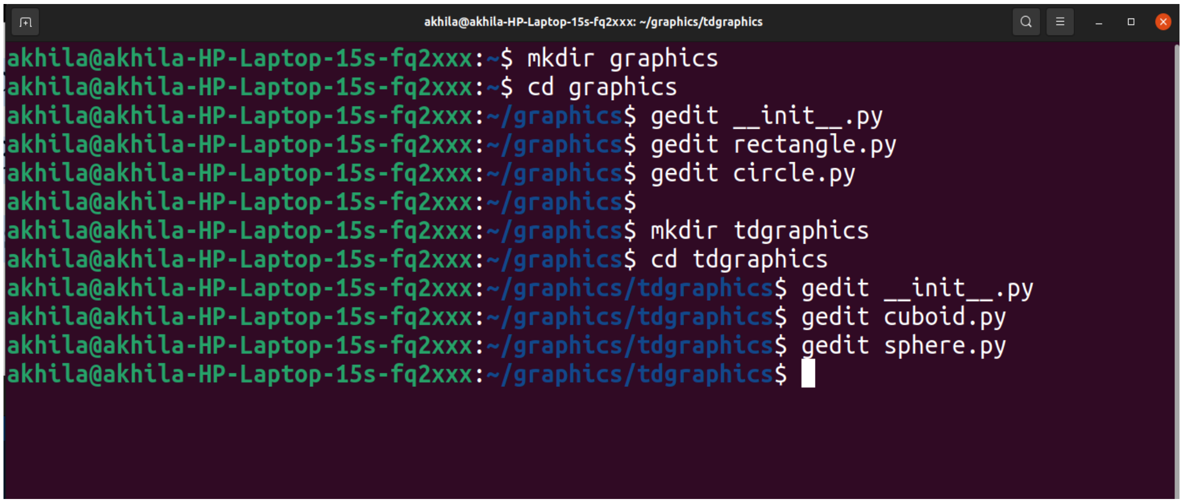


```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$ python3 10.py
Enter the number: 248
The factors of  248
2
4
8
31
62
124
248
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/python/co2$
```

Sl no.:-30

Aim :- Create a package graphics with modules rectangle,circle and sub-package 3D graphics with module cuboid and sphere. Include methods to find area and perimeter of respective figures in each modules. Write programs that finds area and perimeter of figures by different importing statements.

Terminal Commands:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~$ mkdir graphics
akhila@akhila-HP-Laptop-15s-fq2xxx:~$ cd graphics
akhila@akhila-HP-Laptop-15s-fq2xxx:~/graphics$ gedit __init__.py
akhila@akhila-HP-Laptop-15s-fq2xxx:~/graphics$ gedit rectangle.py
akhila@akhila-HP-Laptop-15s-fq2xxx:~/graphics$ gedit circle.py
akhila@akhila-HP-Laptop-15s-fq2xxx:~/graphics$
akhila@akhila-HP-Laptop-15s-fq2xxx:~/graphics$ mkdir tdgraphics
akhila@akhila-HP-Laptop-15s-fq2xxx:~/graphics$ cd tdgraphics
akhila@akhila-HP-Laptop-15s-fq2xxx:~/graphics/tdgraphics$ gedit __init__.py
akhila@akhila-HP-Laptop-15s-fq2xxx:~/graphics/tdgraphics$ gedit cuboid.py
akhila@akhila-HP-Laptop-15s-fq2xxx:~/graphics/tdgraphics$ gedit sphere.py
akhila@akhila-HP-Laptop-15s-fq2xxx:~/graphics/tdgraphics$ 
```

Program Code:-

graphics\rectangle.py

```
class Rectangle:
def __init__(self,length,width):
        self.length=length
        self.width=width
def area(self):
        return (self.length*self.width)
def perimeter(self):
        return (2*(self.length+self.width))
```

graphics\circle.py

```
global pi
pi=3.1416
class Circle:
        global pi
        pi=3.1416
        def __init__(self,radius):
                self.radius=radius
        def area(self):
                return (pi*(self.radius**2))
        def perimeter(self):
                return (2*pi*self.radius)
```

tdgraphics\cuboid.py

```
class Cuboid:
def __init__(self,length,width,height):
        self.l=length
        self.w=width
        self.h=height
def volume(self):
        return (self.l*self.w*self.h)
def area(self):
        l=self.l
        w=self.w
        h=self.h
        return (2*((l*w)+(w*h)+(l*h)))
```

tdgrapics\sphere.py

```
global pi
pi=3.1416
class Sphere:
        def __init__(self,radius):
                self.radius=radius
        def volume(self):
                r=self.radius
                return ((4/3)*pi*(r**3))
        def area(self):
                r=self.radius
```

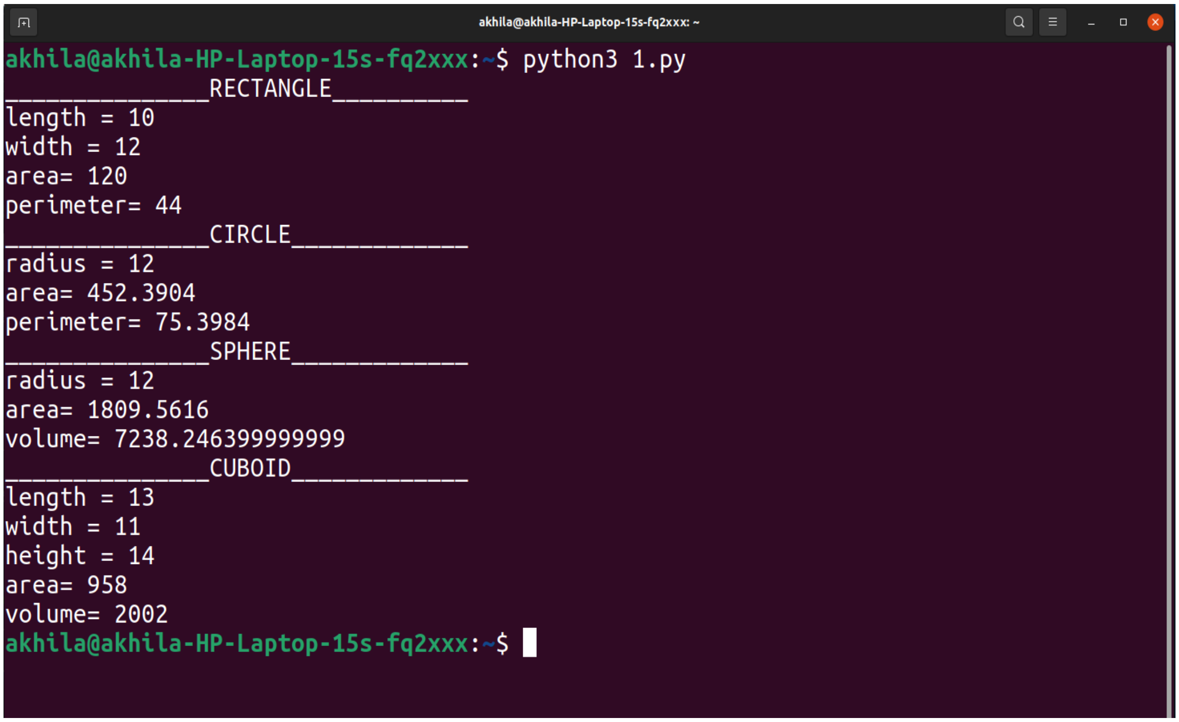
```
            return (4*pi*(r**2))
```

<u>1.py</u>

```
from graphics import rectangle as rt
from graphics import circle
from graphics.tdgraphics import sphere
from graphics.tdgraphics import cuboid


#Rectangle
r=rt.Rectangle(10,12)
print("________________RECTANGLE___________")
print("length =",r.length)
print("width =",r.width)
print("area=",r.area())
print("perimeter=",r.perimeter())

#Circle
c=circle.Circle(12)
print("________________CIRCLE______________")
print("radius =",c.radius)
print("area=",c.area())
print("perimeter=",c.perimeter())

#Sphere
s=sphere.Sphere(12)
print("________________SPHERE______________")
print("radius =",s.radius)
print("area=",s.area())
print("volume=",s.volume())
#Cuboid
cu=cuboid.Cuboid(13,11,14)
print("________________CUBOID______________")
print("length =",cu.l)
print("width =",cu.w)
print("height =",cu.h)
print("area=",cu.area())
```

```
        print("volume=",cu.volume())
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~$ python3 1.py
_______________RECTANGLE__________
length = 10
width = 12
area= 120
perimeter= 44
_______________CIRCLE_____________
radius = 12
area= 452.3904
perimeter= 75.3984
_______________SPHERE_____________
radius = 12
area= 1809.5616
volume= 7238.246399999999
_______________CUBOID_____________
length = 13
width = 11
height = 14
area= 958
volume= 2002
akhila@akhila-HP-Laptop-15s-fq2xxx:~$ 
```

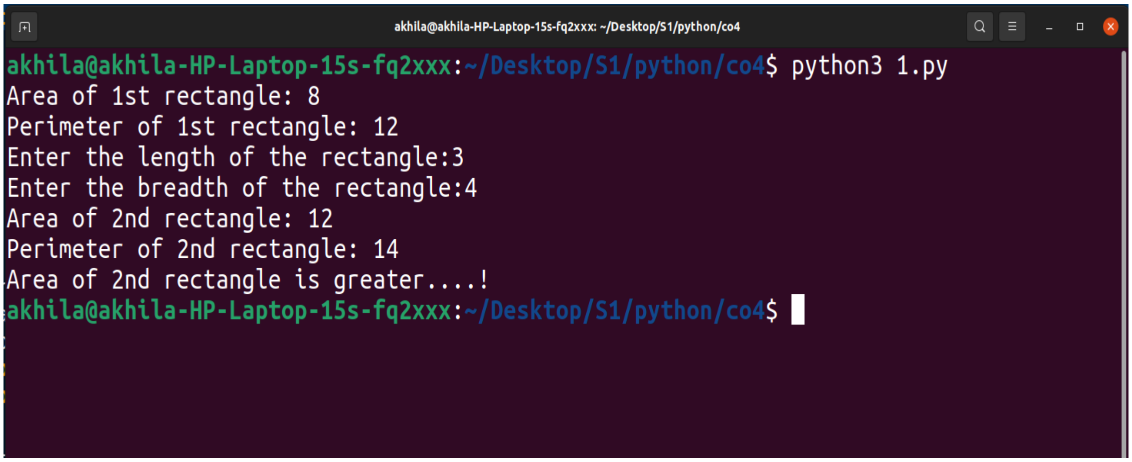
Sl no.:-31

Aim:-Create Rectangle class with attributes length and breadth and methods to find area and perimeter. Compare two rectangle objects by their area.

Program code:-

```
class Rectangle:
def __init__(self,length,breadth):
    self.len=length
    self.brea=breadth
def area(self):
    return self.len*self.brea

def perimeter(self):
    return 2*(self.len+self.brea)

r1=Rectangle(2,4)
a1=r1.area()
p1=r1.perimeter()
print("Area of 1st rectangle:",a1)
print("Perimeter of 1st rectangle:",p1)

l=int(input("Enter the length of the rectangle:"))
b=int(input("Enter the breadth of the rectangle:"))
r2=Rectangle(l,b)
a2=r2.area()
p2=r2.perimeter()
print("Area of 2nd rectangle:",a2)
print("Perimeter of 2nd rectangle:",p2)

if (a1>a2):
    print("Area of 1st rectangle is greater.....!")
elif(a1==a2):
    print("Area of both rectangle is same.....!")
else:
    print("Area of 2nd rectangle is greater....!")
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/S1/python/co4$ python3 1.py
Area of 1st rectangle: 8
Perimeter of 1st rectangle: 12
Enter the length of the rectangle:3
Enter the breadth of the rectangle:4
Area of 2nd rectangle: 12
Perimeter of 2nd rectangle: 14
Area of 2nd rectangle is greater....!
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/S1/python/co4$ 
```

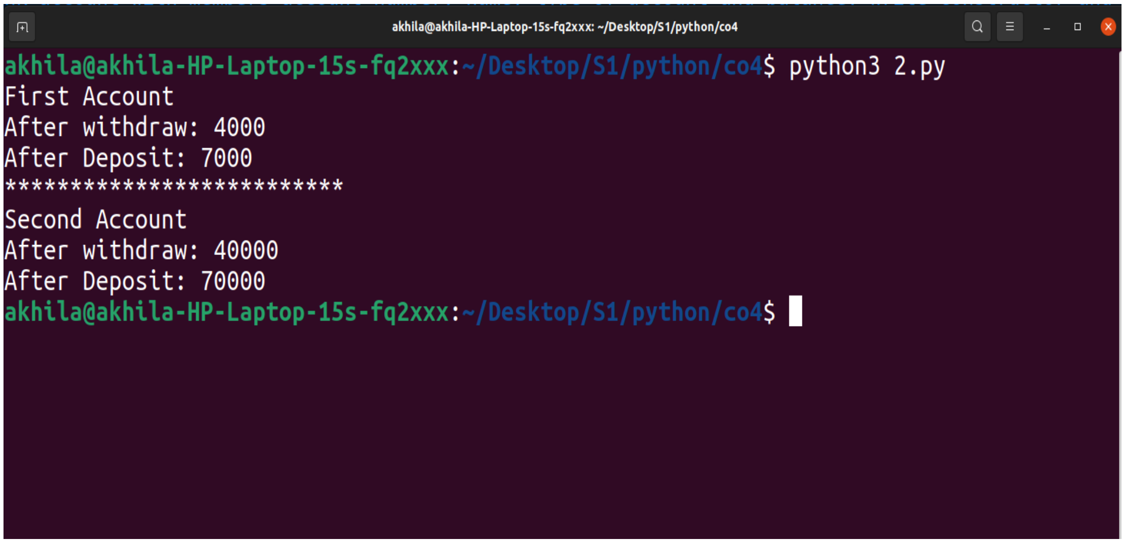
Sl no.:-32

Aim:-Create a Bank account with members account number, name, type of account and balance. Write constructor and methods to deposite at the bank and withdraw an amount from the bank.

Program code:-

```
class Bank:
    def __init__(self,acc_no,name,type_of_acc,balance):
        self.acc_no=acc_no
        self.name=name
        self.type_of_acc=type_of_acc
        self.balance=balance

    def deposit(self,x):
        return self.balance+x

    def withdraw(self,y):
        return self.balance-y

print('First Account')
acc1=Bank(111,"Emma","personal",5000)
w1=acc1.withdraw(1000)
d1=acc1.deposit(2000)
print('After withdraw:',w1)
print('After Deposit:',d1)
print('**************************')
print('Second Account')
acc2=Bank(222,"Emliy","personal",50000)
w2=acc2.withdraw(10000)
d2=acc2.deposit(20000)
print('After withdraw:',w2)
print('After Deposit:',d2)
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/S1/python/co4$ python3 2.py
First Account
After withdraw: 4000
After Deposit: 7000
**************************
Second Account
After withdraw: 40000
After Deposit: 70000
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/S1/python/co4$ 
```

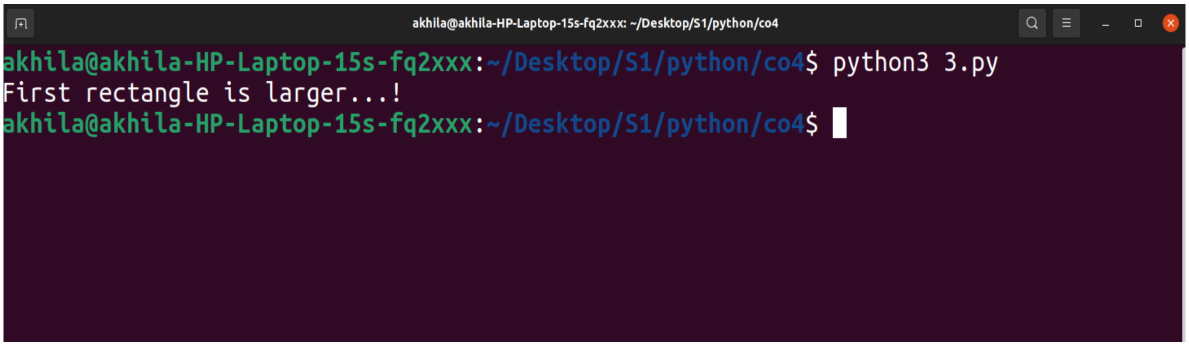
Sl no.:-33

Aim:-Create a class Rectangle with private attributes length and width. Overload '<' operator to compare the area of two rectangles.

Program code:-

```
class Rectangle:
    def __init__(self,lenght,width):
        self.__length=lenght
        self.__width=width
    def __lt__(self,rec2):
        if self.__length * self.__width < rec2.__length * rec2.__width :
            return True
        else:
            return False
rec1=Rectangle(2,3)
rec2=Rectangle(1,3)

if rec1 < rec2:
    print("Second rectangle is larger...!")
else:
    print("First rectangle is larger...!")
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/S1/python/co4$ python3 3.py
First rectangle is larger...!
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/S1/python/co4$ 
```

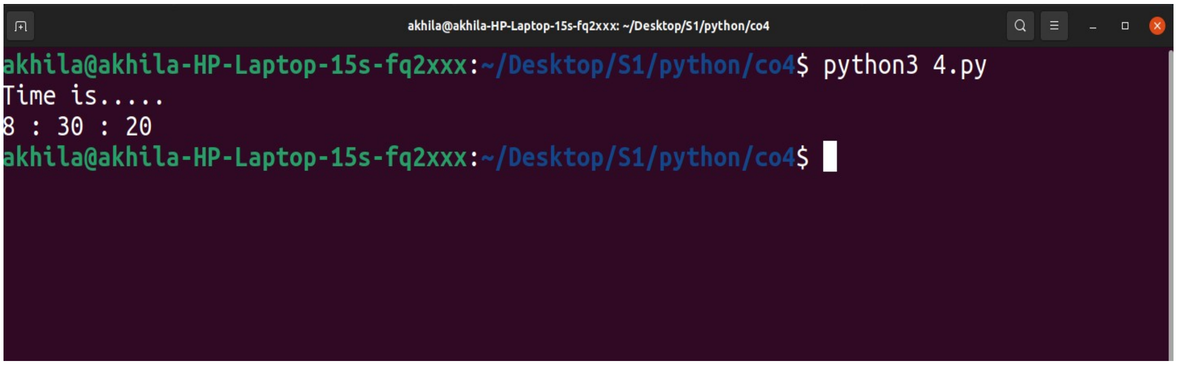
Sl no.:-34

Aim:-Create a class Time with private attributes hour,minute and second. Overload ‘+’ operator to find sum of two time.

Program code:-

```
class Time:
        def __init__(self,hour,minute,second):
                self.__hour=hour
                self.__minute=minute
                self.__second=second

        def __add__(self,t2):
                x=t1.__hour+t2.__hour
                y=t1.__minute+t2.__minute
                z=t1.__second+t2.__second
                print('Time is.....')
                print(x,":",y,":",z)
t1=Time(4,10,5)
t2=Time(4,20,15)
t3=t1+t2
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/S1/python/co4$ python3 4.py
Time is.....
8 : 30 : 20
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/S1/python/co4$ 
```

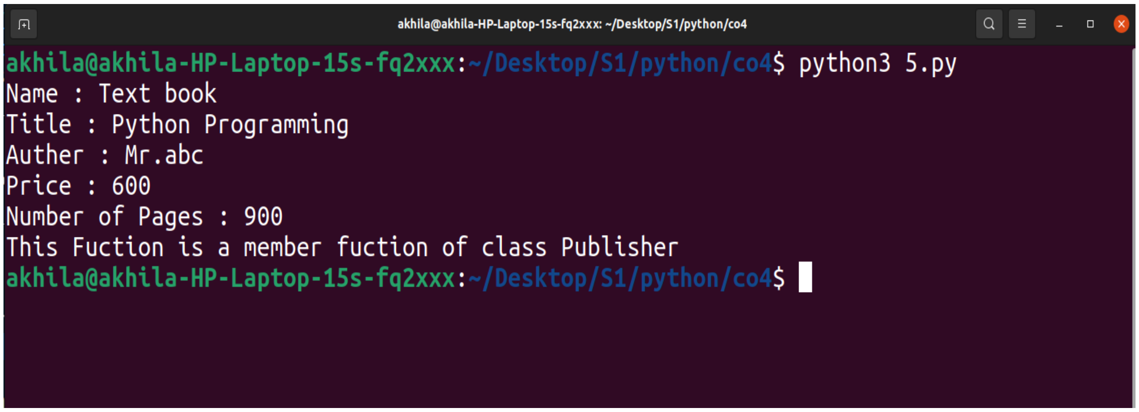
Sl no.:-35

Aim:-Create a class Publisher(name). Derive class Book from Publisher with attributes title and author. Derive class python from Book with attributes price and no_of_pages. Write a program that displays information about a Python book. Use base class constructor invocation and method overreading.

Program code:-

```
class Publisher:
    def __init__(self,name):
        self.name=name

class Book(Publisher):
    def __init__(self,name,title,author):
        super().__init__(name)
        self.title=title
        self.author=author


class Python(Book):
    def __init__(self,name,title,author,price,pages):
        super().__init__(name,title,author)
        self.price=price
        self.pages=pages

    def print_function(self):
        print("Name :",self.name)
        print("Title :",self.title)
        print("Auther :",self.author)
        print("Price :",self.price)
        print("Number of Pages :",self.pages)

p1=Python("Text book","Python Programming","Mr.abc",600,900)
p1.print_function()
p2=Book("a","b","c")
p2.print_function()
```

Output:-



```
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/S1/python/co4$ python3 5.py
Name : Text book
Title : Python Programming
Auther : Mr.abc
Price : 600
Number of Pages : 900
This Fuction is a member fuction of class Publisher
akhila@akhila-HP-Laptop-15s-fq2xxx:~/Desktop/S1/python/co4$ 
```

Sl no.:-36

Aim:-Write a program to read a file line by line and store it into a list.

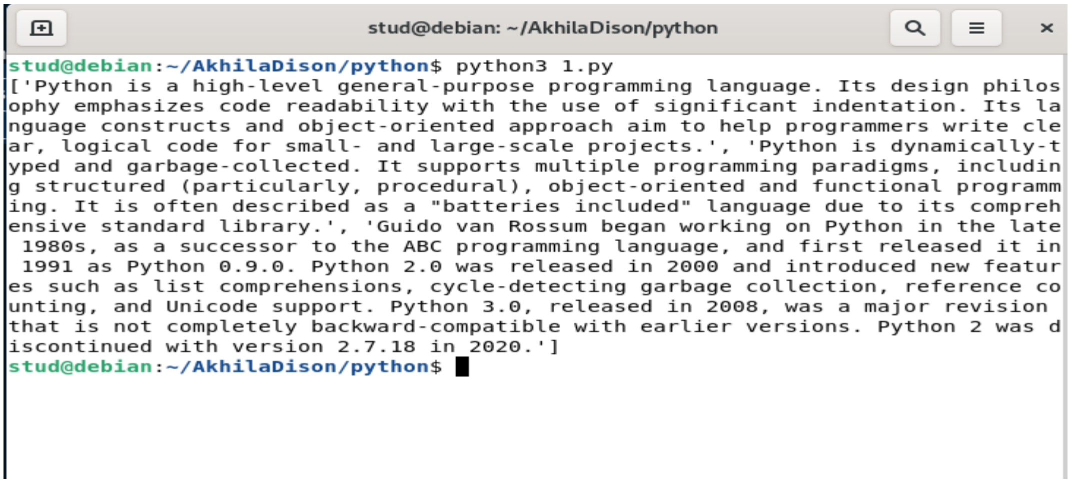
Program code:-

```
file=open("text.txt","r")
lines=[]
for line in file:
        lines.append(line.strip())
print(lines)
```

text.txt

Python is a high-level general-purpose programming language. Its design philosophy emphasizes code readability with the use of significant indentation. Its language constructs and object-oriented approach aim to help programmers write clear, logical code for small- and large-scale projects.
Python is dynamically-typed and garbage-collected. It supports multiple programming paradigms, including structured (particularly, procedural), object-oriented and functional programming. It is often described as a "batteries included" language due to its comprehensive standard library.
Guido van Rossum began working on Python in the late 1980s, as a successor to the ABC programming language, and first released it in 1991 as Python 0.9.0. Python 2.0 was released in 2000 and introduced new features such as list comprehensions, cycle-detecting garbage collection, reference counting, and Unicode support. Python 3.0, released in 2008, was a major revision that is not completely backward-compatible with earlier versions. Python 2 was discontinued with version 2.7.18 in 2020.

Output:-



```
stud@debian:~/AkhilaDison/python$ python3 1.py
['Python is a high-level general-purpose programming language. Its design philos
ophy emphasizes code readability with the use of significant indentation. Its la
nguage constructs and object-oriented approach aim to help programmers write cle
ar, logical code for small- and large-scale projects.', 'Python is dynamically-t
yped and garbage-collected. It supports multiple programming paradigms, includin
g structured (particularly, procedural), object-oriented and functional programm
ing. It is often described as a "batteries included" language due to its compreh
ensive standard library.', 'Guido van Rossum began working on Python in the late
 1980s, as a successor to the ABC programming language, and first released it in
 1991 as Python 0.9.0. Python 2.0 was released in 2000 and introduced new featur
es such as list comprehensions, cycle-detecting garbage collection, reference co
unting, and Unicode support. Python 3.0, released in 2008, was a major revision 
that is not completely backward-compatible with earlier versions. Python 2 was d
iscontinued with version 2.7.18 in 2020.']
stud@debian:~/AkhilaDison/python$ 
```

Sl no.:-37

Aim:-Write a Python program to read each row from a given csv file and print a list of strings.

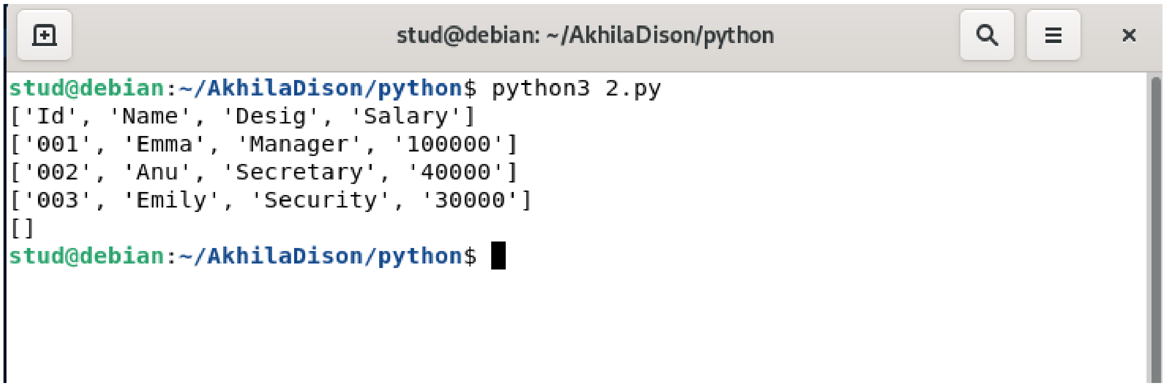
Program code:-

```
import csv
with open("text.csv","r") as file:
        reader=csv.reader(file)
        for row in reader:
                print(row)
```

test.csv

```
Id,Name,Desig,Salary
001,Emma,Manager,100000
002,Anu,Secretary,40000
003,Emily,Security,30000
```

Output:-



```
stud@debian:~/AkhilaDison/python$ python3 2.py
['Id', 'Name', 'Desig', 'Salary']
['001', 'Emma', 'Manager', '100000']
['002', 'Anu', 'Secretary', '40000']
['003', 'Emily', 'Security', '30000']
[]
stud@debian:~/AkhilaDison/python$ 
```

*****