FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY (FISAT)™

HORMIS NAGAR, MOOKKANNOOR, ANGAMALY-683577

FOCUS ON EXCELLENCE

20MCA131 PROGRAMMING LAB

LABORATORY RECORD

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FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY (FISAT)™

HORMIS NAGAR, MOOKKANNOOR, ANGAMALY-683577

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CERTIFICATE

This is to certify that this is a Bonafide record of the Practical work done by ***ANZ MARIYA DAVIS (FIT21MCA-2034)*** *in the* ***20MCA131 PROGRAMMING LAB*** *Laboratory towards the partial fulfilment for the award of the Master Of Computer Applications during the academic year 2021-2022.*

Signature of Staff in Charge

Name:

Signature of H O D

Name:

Date of University practical examination ……

Signature of
Internal Examiner

Signature of
External Examiner

CONTENT

12	**11/11/2021**	Create a list of colors from comma-separated color names entered by user. Display first and last colors.	**13**	
13	**11/11/2021**	Accept an integer n and compute n+nn+nnn.	**13**	
14	**11/11/2021**	Print out all colors from color-list1 not contained in color-list2.	**14**	
15	**17/11/2021**	Create a single string separated with space from two strings by swapping the character at position 1.	**14**	
16	**17/11/2021**	Sort dictionary in ascending and descending order.	**15**	
17	**17/11/2021**	Merge two dictionaries.	**15**	
18	**17/11/2021**	Find gcd of 2 numbers.	**16**	
19	**17/11/2021**	From a list of integers, create a list removing even numbers.	**16**	
COURSE OUTCOME 217				
20	**25/11/2021**	Program to find the factorial of a number	**17**	
21	**25/11/2021**	Generate Fibonacci series of N terms	**17**	
22	**25/11/2021**	Find the sum of all items in a list	**18**	
23	**25/11/2021**	Generate a list of four digit numbers in a given range with all their digits even and the number is a perfect square.	**18**	
24	**2/12/2021**	Display the given pyramid with step number accepted from user.	**19**	
25	**2/12/2021**	Count the number of characters (character frequency) in a string.	**20**	
26	**2/12/2021**	Add ‘ing’ at the end of a given string. If it already ends with ‘ing’, then add ‘ly’.	**21**	

27	**9/12/2021**	Accept a list of words and return length of longest word.	**21**	
28	**9/12/2021**	Construct following pattern using nested loop. *	**22**	
29	**9/12/2021**	Generate all factors of a number.	**23**	
COURSE OUTCOME 3				
30	**29/01/2022**	Create a package graphics with modules rectangle, circle and sub-package 3D-graphics with modules cuboid and sphere. Include methods to find area and perimeter of respective figures in each module. Write programs that finds area and perimeter of figures by different importing statements. (Include selective import of modules and import * statements)	**24**	
COURSE OUTCOME 4				
31	**13/01/2022**	Create Rectangle class with attributes length and breadth and methods to find area and perimeter. Compare two Rectangle objects by their area.	**27**	
32	**13/01/2022**	Create a Bank account with members account number, name, type of account and balance. Write constructor and methods to deposit at the bank and withdraw an amount from the bank.	**28**	

33	**13/01/2022**	Create a class Rectangle with private attributes length and width. Overload '<' operator to compare the area of 2 rectangles.	**30**	
34	**20/01/2022**	Create a class Time with private attributes hour, minute and second. Overload '+' operator to find sum of 2 time	**31**	
35	**20/01/2022**	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 overriding.	**32**	
COURSE OUTCOME 534				
36	**03/02/2022**	Write a Python program to read a file line by line and store it into a list.	**34**	
37	**03/02/2022**	Write a Python program to read each row from a given csv file and print a list of strings.	**34**	

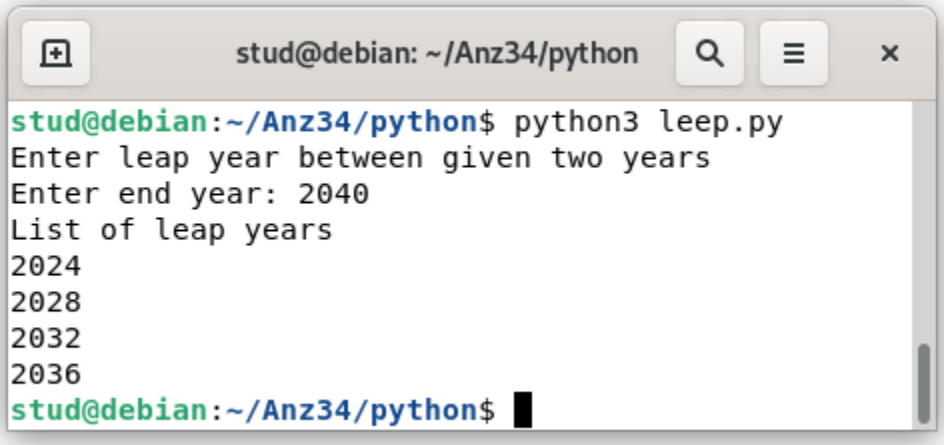
COURSE OUTCOME 1

1) Display future leap years from current year to a final year entered by User.

Source code

```
print("print leap year
between two given years");
startyear=2021
endyear=int(input("Enter end year")) print("list of leap years")
for year in
    range(startyear,endyear
    ): if(0==year%4):
        print(year)
```

Output



2) List comprehensions:

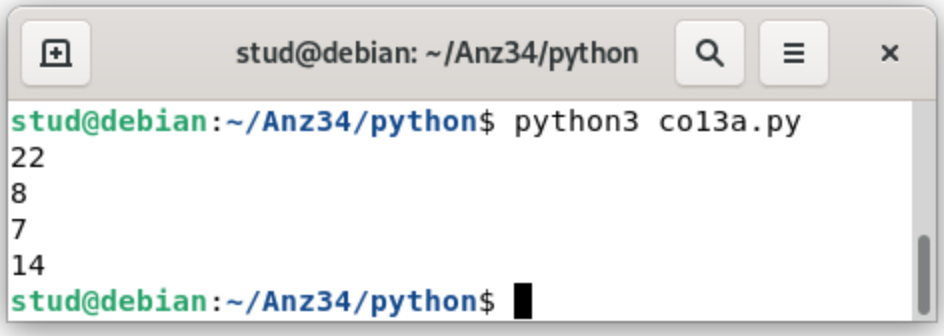
a. Generate positive list of numbers from a given list of integers.

Source code

```
list=[22,-56,8,-5,7,14]
```

```
for num in list:
 if num>=0:
  print(num)
```

Output



b. Square of N numbers

Source code

```
n=int(input('Enter range:'))
for num in range(1,n+1):
    num=num*num
    print(num)
```

Output

```
Enter range:6
1
4
9
16
25
36
```

c. Form a list of vowels selected from a given word.

Source code

```
s=input("Enter a string: ")
list=[]
```

```
for i in s:
   if i in "aeiouAEIOU":
            list.append(i)
print("vowels in the list are:")
print(list)
```

Output

```
Enter a string: hallo
vowels in the list are:
['a', 'o']
```

d. List ordinal values of each element of a word.

Source code

```
print("String: Hallo")
print("Ordinal Values")
for i in 'H','a','l','l','o':
   x=ord(i)
   print(x)
```

Output

```
String: Hallo
Ordinal Values
72
97
108
108
111
```

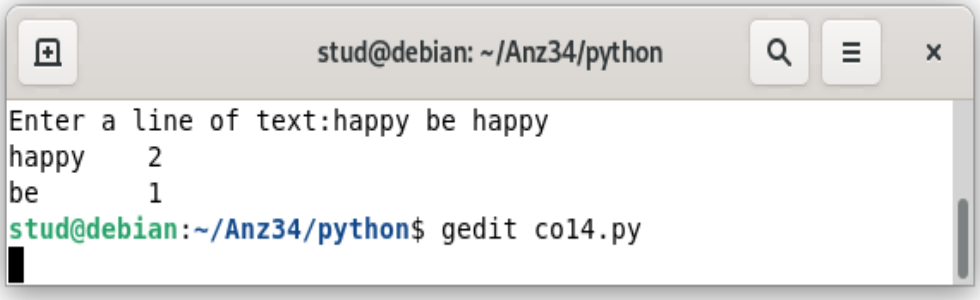
3) Count the occurrences of each word in a line of text.

Source code

```
list1=[]
list2=[]
```

```
x=input("Enter a line of text:")
for i in x.split(" "):
        list1.append(i)
        if i not in list2:
                list2.append(i)
for i in list2:
print(i,"\t",list1.count(i))
```

Output

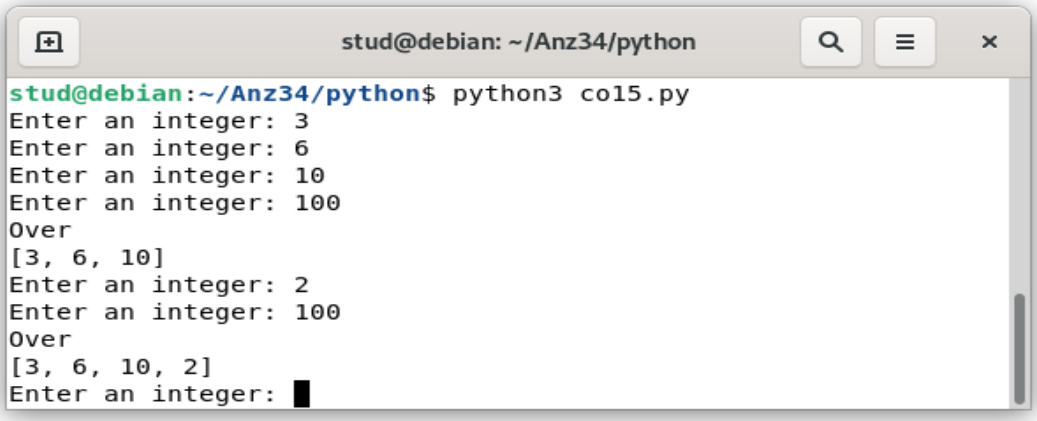


4) **Prompt the user for a list of integers. For all values greater than 100, store 'over' instead.**

Source code

```
list=[]
while True:
 n=int(input('Enter an integer: '))
 if(n<=100):
        list.append(n)
 else:
        list.append('over')
        print(list)
```

Output



5) Store a list of first names. Count the occurrences of 'a' within the list.

Source code

```
list=['anz','mariya','anju'] print("Elements in the list are:")
print(list)
count=0
for word in list:
        for i in word:
                if i=='a':
                        count+=1
print("count of 'a' is:", count)
```

Output

```
Elements in the list are:
['anz', 'mariya', 'anju']
count of 'a' is: 4
```

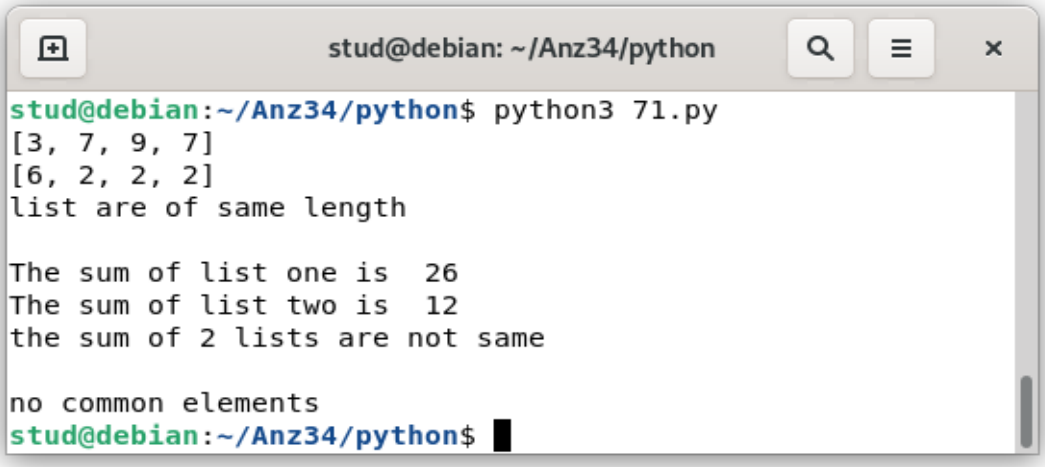
6) Enter 2 lists of integers.Check

a. **whether list are of same length**
b. **whether list sums of same value**
c. **whether any value occur in both.**

Source code

```
l1=[3,7,9,7]
l2=[6,2,2,2]
print("List 1",l1)
print("List 2",l2)
x=len(l1)
y=len(l2)
if x==y:
 print("List are of same length")
else:
 print("Length of lists are different")
s1=0
s2=0
for i in range(x):
 s1=s1+l1[i]
print("Sum of elements of List1:",s1)
for j in range(y):
 s2=s2+l2[j]
print("Sum of elememts of List2:",s2)
if s1==s2:
 print("Sum of list elements is same")
else:
 print("Sum of list elements is not same")
print("Common elements are:")
for i in range(x):
 for j in range(y):
        if l1[i]==l2[j]:
                print(l1[i])
```

Output



7) Get a string from an input string where all occurrences of first character replaced with '$',except first character.[eg:onion->oni$n]

Source code

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

Output

```
Enter a string: anzmariya
Original string is:  anzmariya
String:  anzm$riy$
```

8) Create a string from given string where first and last characters exchanged. [eg:python->nythop]

Source code

```
s=input("Enter a string: ")
t=s[0]
```

```
t1=s[-1]
n=len(s)
ns=t1+s[1:n-1]+t
print(ns)
```

Output

```
Enter a string: python
nythop
```

9) Accept the radius from the user and find the area of the circle.

Source code

```
r=int(input('Enter the radius: '))
A=3.14*r*r
print(A)
```

Output

10) Find the biggest of 3 numbers

Source code

```
a=int(input('Enter first number:'))
b=int(input('Enter second number:'))
c=int(input('Enter third number:'))
if a>b and a>c:
 print(a)
if b>a and b>c:
 print(b)
if c>a and c>b:
 print(c)
```

Output

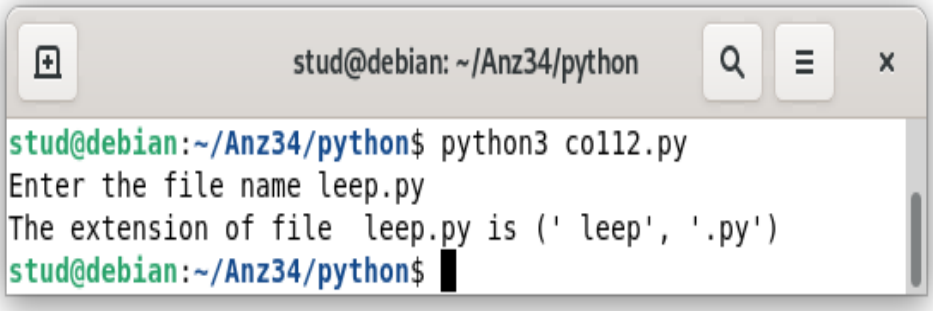
```
Enter first number:5
Enter second number:7
Enter third number:11
11
```

11) Accept a file name from user and print extension of that.

Source code

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

Output



12) Create a list of colors from comma-separated color names entered by user. Display first and last colors.

Source code

```
colors=[]
str=(input("Enter color names:"))
for i in str.split(','):
 colors.append(i)
print(colors)
print("first color:",colors[0],"Last color:",colors[-1])
```

Output

```
Enter color names:yellow,blue,green,red
['yellow', 'blue', 'green', 'red']
first color: yellow Last color: red
```

13) Accept an integer n and compute n+nn+nnn.

Source code

```
n=int(input("Enter the number:"))
a=n*1
b=n*11
c=n*111
s=a+b+c
print(n,"+",n,"*",n,"+",n,"*",n,"*",n,"=",s)
```

Output

```
Enter the number:5
5 + 5 * 5 + 5 * 5 * 5 = 615
```

14) Print out all color from color-list1 not contained in color-list2

Source code

```
l1=['red','green','blue','yellow','black']
l2=['red','green','yellow']
print(l1)
print(l2)
print("Colors that are not in l1:
")
for i in l1:
 if i not in l2:
        print(i)
```

Output

```
['red', 'green', 'blue', 'yellow', 'black']
['red', 'green', 'yellow']
Colors that are not in l1:
blue
black
```

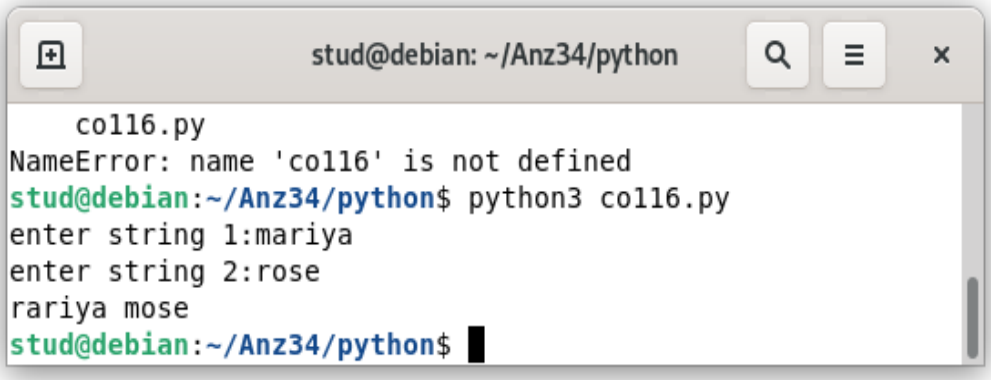
15) Create a single string separated with space from two strings by swapping

the character at position 1.

Source code

```
str1=input("Enter first string:")
str2=input("Enter second string:")
str3=str2[0]+str1[1:]+" "+str1[0]+str2[1:]
print(str3)
```

Output



16) Sort dictionary in ascending and descending order.

Source code

```
d1={"a":1,"c":3,"d":2,"b":4}
l=list(d1.items())
print(l)
l.sort()
print("Ascending order is\n",l)
l=list(d1.items())
l.sort(reverse=True)

print("Descending order is\n",l)
```

Output

```
[('a', 1), ('c', 3), ('d', 2), ('b', 4)]
Ascending order is
 [('a', 1), ('b', 4), ('c', 3), ('d', 2)]
Descending order is
 [('d', 2), ('c', 3), ('b', 4), ('a', 1)]
```

17) Merge two dictionaries.

Source code

```
D1={"Name":"Anz mariya","Age":"22"}
print("Directory 1",D1)
D2={"Gender":"Female","Qualification":"BCA"}
print("Directory 2",D2)
D1.update(D2)
print("After merging...")
print(D1)
```

Output

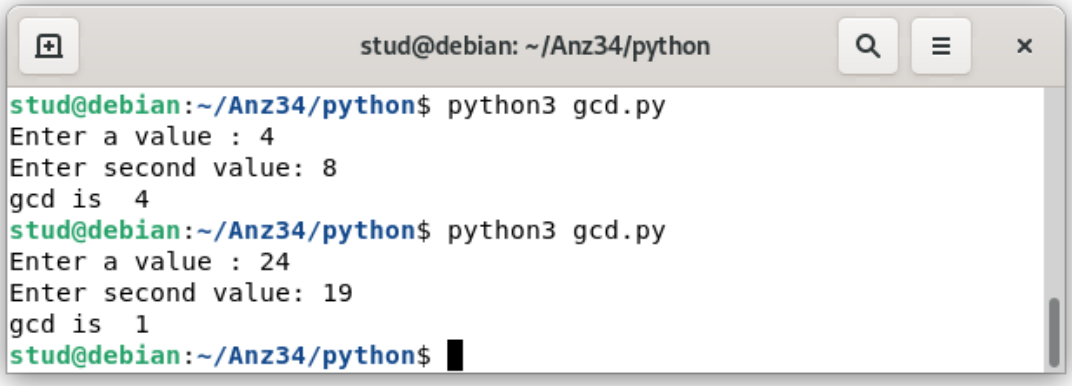
```
Directory 1 {'Name': 'Anz mariya', 'Age': '22'}
Directory 2 {'Gender': 'Female', 'Qualification': 'BCA'}
After merging...
{'Name': 'Anz mariya', 'Age': '22', 'Gender': 'Female', 'Qualification': 'BCA'}
```

18) Find gcd of 2 numbers

Source code

```
a=int(input("Enter first number: "))
b=int(input("Enter first number: "))
x=min(a,b)
gcd=0
for i in range (1,x+1):
 if((a%x==0) and (b%x==0)):
        gcd=i
print("GCD is",i)
```

Output



19) From a list of integers,create a list removing even numbers.

Source code

```
l1=[1,2,3,4,5,6,7,8,9,10]
print(l1)
l2=[]
for i in range(len(l1)):
 if l1[i]%2!=0:
        l2.append(l1[i])
print("List after removing even elements")
print(l2)
```

Output

```
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
List after removing even elements
[1, 3, 5, 7, 9]
```

COURSE OUTCOME 2

20) Program to find the factorial of a number.

Source code

```
n=int(input('Enter a number:'))
fact=1
for i in range (1,n+1):
   fact=fact*i
```

print(fact)

Output

```
Enter a number:5
120
Enter a number:4
24
```

21) Generate fibonacci series of N terms.

Source code

```
n=int(input('Enter a limit:'))
a=0
b=1
print(a)
print(b)
for i in range (2,n):
        c=a+b
        print(c)
        a=b
        b=c
```

Output

```
Enter a limit:5
0
1
1
2
3
```

22) Find the sum of all items in a list.

Source code

```
list=[2,8,9,34,25]
```

```
print("List elements are:",list)
sum=0
for i in list:
        sum=sum+i
print("The sum of list elements is:",sum)
```

Output

```
List elements are: [2, 8, 9, 34, 25]
The sum of list elements is: 78
```

23) Generate a list of four digit numbers in a given range with all their digits even and the number is a perfect square.

Source code

```
limit1=1000
limit2=9999
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

```
68
78
80
92
[4624, 6084, 6400, 8464]
```

24) Display the given pyramid with step number accepted from user.

Source code

```
n=int(input("Enter a number:"))
for j in range(0,n+1):
    for i in range(1,j+1):
            i=j*i
            print(i,end=" ")
    print("\n")
```

Output

```
Enter a number:4

1

2 4

3 6 9

4 8 12 16
```

25) Count the number of characters (character frequency) in a string.

Source code

```
string=input("Enter a string:")
list1=[]
for i in string:
```

```
    if i not in list1:
            list1.append(i)
for i in list1:
    count=0
    for j in string:
            if(i==j):
                    count=count+1
    print(i,"\t:",count)
```

Output

```
Enter a string:welcome
w       : 1
e       : 2
l       : 1
c       : 1
o       : 1
m       : 1
```

26) Add 'ing' at the end of a given string. If it already ends with 'ing', then add 'ly'.

Source code

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

Output

```
Enter a string:beautifuly
beautifulying
```

27) Accept a list of words and return length of longest word.

Source code

```
lis=[]
n=int(input("Enter the range:"))
print("Enter the words:")
```

```
for i in range(0,n):
        lis.append(input(""))
longest=lis[0]
for i in range(1,n):
        if(len(lis[i])>len(longest)):
          longest=lis[i]
print("Length of longest word is",len(longest))
```

Output

```
Enter the range:5
Enter the words:
anz
mariya
davis
bindu
alan
Length of longest word is 6
```

28) Construct following pattern using nested loop.

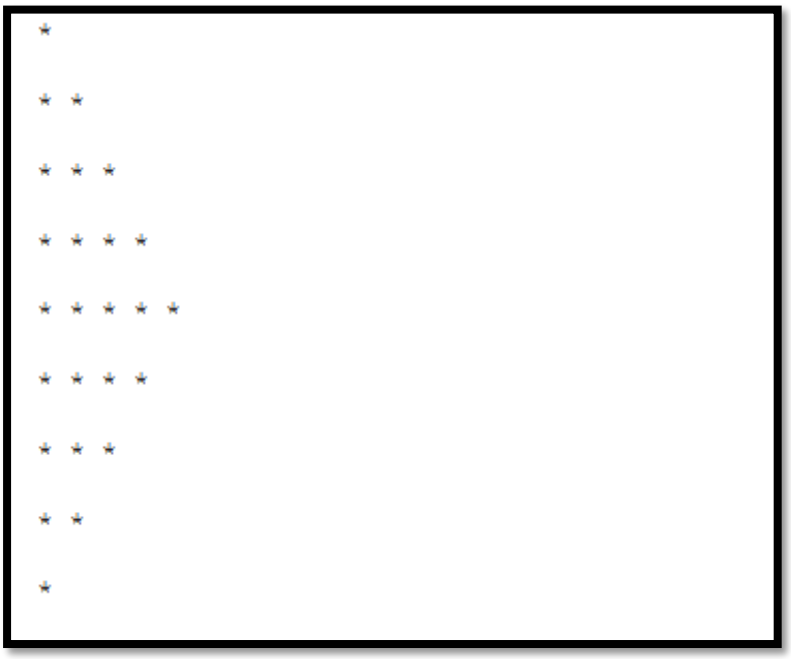
```
*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*
```

Source code

```
for i in range(1,6):
```

```
    for j in range(1,i+1):
            print("*",end=" ")
    print("\n")
for i in range(4,0,-1):
    for j in range(1,i+1):
            print("*",end=" ")
    print("\n")
```

Output



29) Generate all factors of a number.

Source code

```
n=int(input("Enter a number:"))
print("Factors are")
for i in range(1,n+1):
    if(n%i==0):
            print(i)
```

Output

```
Enter a number:8
Factors are
1
2
4
8
```

COURSE OUTCOME 3

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

Source code

Graphice\circle.py

```
from math import pi
def area_circle(radius):
    return pi*radius*radius
def perimeter_circle(radius):
    return 2*pi*radius
```

Graphics\rectangle.py

```
def area_rec(length,width):
    return length*width
def perimeter_rec(length,width):
    return 2*(length+width)
```

Graphics\tdgraphics\cuboid.py

```
def area_cuboid(l,b,h):
    return 2*(l*h + b*h + l*b)
def volume_cuboid(l,b,h):
    return l*b*h
```

Graphics\tdgraphics\sphere.py

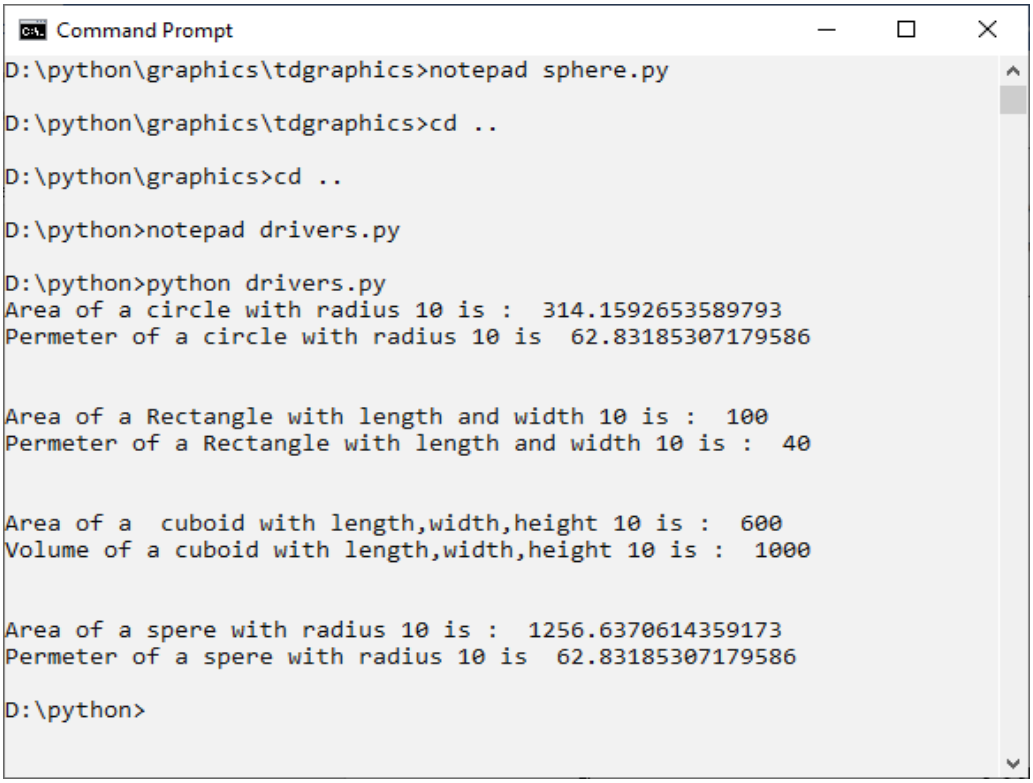
```
from math import pi
def area_sphere(radius):
   return 4*(pi*radius*radius)
def perimeter_sphere(radius):
   return 2*pi*radius
```

graphics.py (driver code)

```
import Graphics
from Graphics import circle,rectangle
from Graphics.tdgraphics import cuboid,sphere
from Graphics.circle import *
print("Area of a circle with radius 10 is : ",circle.area_circle(10))
print("Permeter of a circle with radius 10 is ",circle.perimeter_circle(10))
print("\n")

print("Area of a Rectangle with length and width 10 is :
      ",rectangle.area_rec(10,10))
print("Permeter of a Rectangle with length and width 10 is :
      ",rectangle.perimeter_rec(10,10))
print("\n")

print("Area of a  cuboid with length,width,height 10 is :
      ",cuboid.area_cuboid(10,10,10))
print("Volume of a cuboid with length,width,height 10 is :
      ",cuboid.volume_cuboid(10,10,10))
print("\n")

print("Area of a spere with radius 10 is : ",sphere.area_sphere(10))
print("Permeter of a spere with radius 10 is ",sphere.perimeter_sphere(10))
```

Output


Command Prompt
(c) Microsoft Corporation. All rights reserved.
C:\Users\ANZ>D:
D:\>cd python
D:\python>md graphics
D:\python>cd graphics
D:\python\graphics>notepad __init__.py
D:\python\graphics>notepad rectangle.py
D:\python\graphics>notepad circle.py
D:\python\graphics>md tdgraphics
D:\python\graphics>cd tdgraphics
D:\python\graphics\tdgraphics>notepad __int__.py
D:\python\graphics\tdgraphics>notepad cuboid.py
D:\python\graphics\tdgraphics>notepad sphere.py
D:\python\graphics\tdgraphics>cd ..



COURSE OUTCOME 4

31) Create Rectangle class with attributes length and breadth and methods to find area and perimeter. Compare two Rectangle objects by their area.

Source code

```
class Rectangle:

    def __init__(self,length,breadth):

            self.length = length

            self.breadth = breadth

    def area(self):
```

```
            return self.length * self.breadth
    def perimeter(self):
            return 2*(self.length + self.breadth)
l=int(input("Enter length of rectangle1: "))
b=int(input("Enter breadth of rectangle1: "))
rect1 = Rectangle(l,b)
a1=rect1.area()
p1=rect1.perimeter()
print("Area:",a1)
print("Perimeter:",p1)
l=int(input("Enter length of rectangle2: "))
b=int(input("Enter breadth of rectangle2: "))
rect2 = Rectangle(l,b)
a2=rect2.area()
p2=rect2.perimeter()
print("Area:",a2)
print("Perimeter:",p2)
if (a1>a2):
   print("First rectangle is larger")
elif a1==a2:
   print("Rectangles are of same area")
else:
   print("Second rectangle is larger")
```

Output

```
Enter length of rectangle1: 8
Enter breadth of rectangle1: 6
Area: 48
Perimeter: 28
Enter length of rectangle2: 6
Enter breadth of rectangle2: 4
Area: 24
Perimeter: 20
First rectangle is larger
```

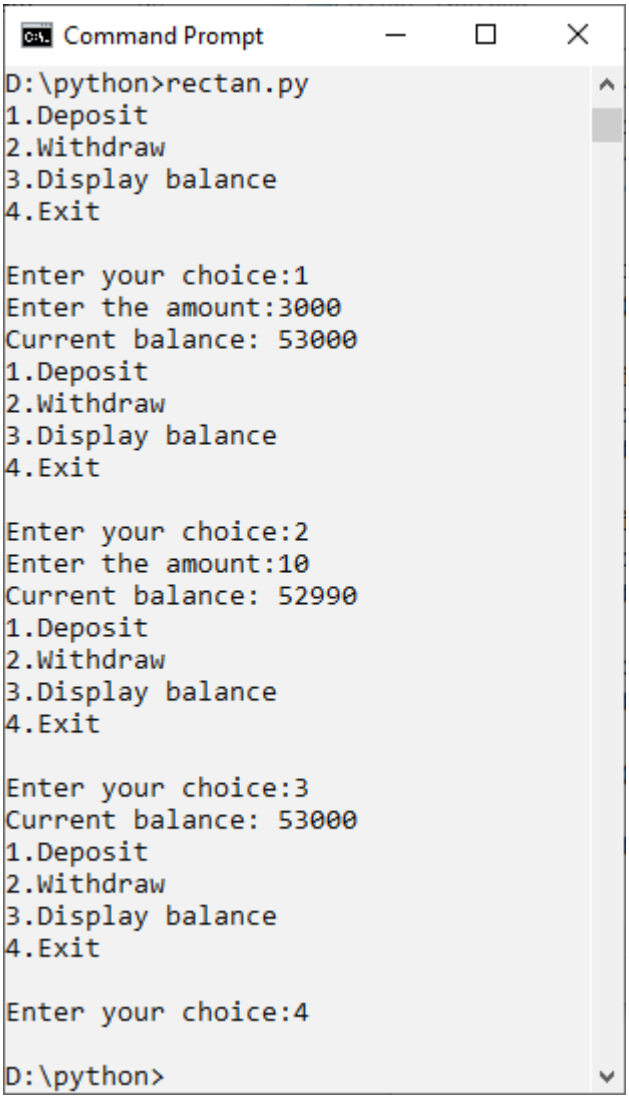
32) Create a Bank account with members account number, name, type of account and balance. Write constructor and methods to deposit at the bank and withdraw an amount from the bank.

Source code

```
class bank:
def __init__(self,acc_no,name,acc_type,bal):
        self.acc_no=acc_no
        self.name=name
        self.acc_type=acc_type
        self.bal=bal
   def deposit(self):
        self.bal=self.bal+y
        return self.bal
   def withdraw(self):
        return self.bal-y
   def display_balance(self):
        return self.bal
acc1=bank("b11","Ann","Savings",50000)
while(1):
   print("1.Deposit\n2.Withdraw\n3.Display balance\n4.Exit\n")
```

```
ch=int(input("Enter your choice:"))
if ch==1:
        amt=int(input("Enter the amount:"))
        b=acc1.deposit(amt)
        print("Current balance:",b)
elif ch==2:
        amt=int(input("Enter the amount:"))
        b=acc1.withdraw(amt)
        print("Current balance:",b)
elif ch==3:
        cb=acc1.display_balance()
        print("Current balance:",cb)
elif ch==4:
        exit(1)
else:
        print("Invalid choice")
```

Output



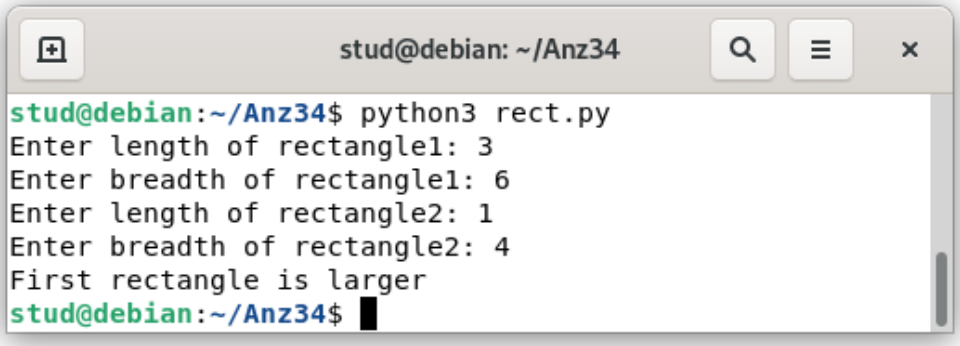
33) Create a class Rectangle with private attributes length and width. Overload '<' operator to compare the area of 2 rectangles.

Source code

```
class Rectangle:
    def __init__(self,length,breadth):
            self.__length = length
            self.__breadth = breadth
    def __lt__ (self,rect2):
            if self.__length*self.__breadth < rect2.__length*rect2.__breadth:
                return True
```

```
            else:
                return False
l=int(input("Enter length of rectangle1: "))
b=int(input("Enter breadth of rectangle1: "))
rect1 = Rectangle(l,b)
l=int(input("Enter length of rectangle2: "))
b=int(input("Enter breadth of rectangle2: "))
rect2 = Rectangle(l,b)
if rect1 < rect2:
   print("Second rectangle is larger")
else:
   print("First rectangle is larger")
```

output



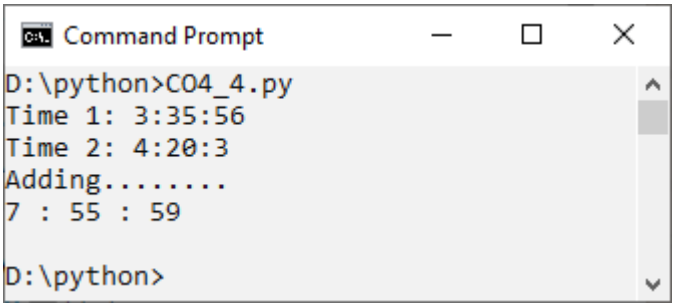
34) Create a class Time with private attributes hour, minute and second. Overload '+' operator to find sum of 2 time.

Source code

```
class Time:
   def __init__(self,hr,min,sec):
            self.__hr=hr
```

```
            self.__min=min
            self.__sec=sec
    def __add__(t1,t2):
            hr=t1.__hr+t2.__hr
            min=t1.__min+t2.__min
            sec=t1.__sec+t2.__sec
            print(hr,":",min,":",sec)
t1=Time(3,35,56)
t2=Time(4,20,3)
print('Time 1: 3:35:56')
print('Time 2: 4:20:3')
print('Adding.....')
t1+t2
```

Output



35) 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 overriding.

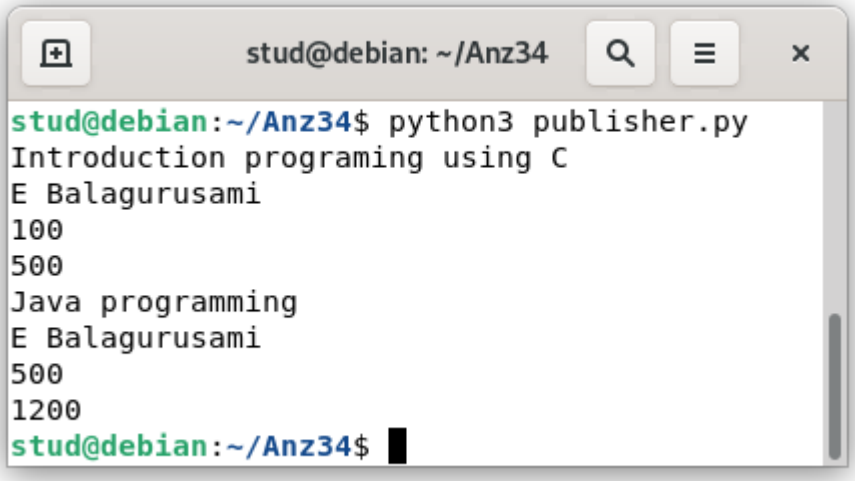
Source code

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

```
    def display1(self):
        print(self.title)
        print(self.author)
class Book(Publisher):
    def __init__(self,name,title,author):
        super().__init__(name)
        self.title=title
        self.author=author
    def display2(self):
        #super().display1()
        print(self.title)
        print(self.author)
class Python(Book):
    def __init__(self,name,title,author,price,no_of_pages):
        super().__init__(name,title,author)
        self.price=price
        self.no_of_pages=no_of_pages
    def display3(self):
        super().display2()
        print(self.price)
        print(self.no_of_pages)
p=Python("ABC Publications","Taming Python","jeeva jose",100,500)
p.display3()
q=Python("XYZ Publications","Java programming","E
Balagurusami",500,1200)
q.display3()
```

Output

COURSE



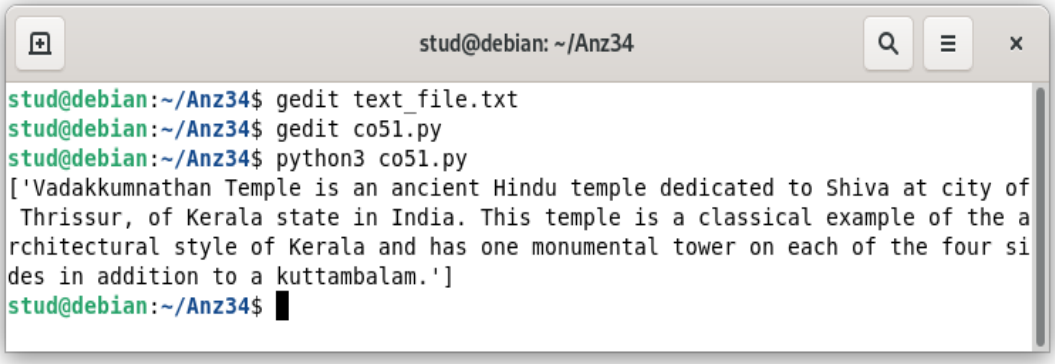
OUTCOME 5

36) Write a Python program to read a file line by line and store it into a list.

Source code

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

Output



37) Write a Python program to read each row from a given csv file and print a list of strings.

Source code

```
import csv

with open('people.csv', 'r') as file:

    reader = csv.reader(file)
    for row in reader:
        print(row)
```

Output