SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING

KADAYIRUPPU, KOLENCHERY 682 311

(Affiliated to APJ Abdul Kalam Technological University)

ACADEMIC YEAR 2021-2022

20 MCA 132 PROGRAMMING LABORATORY RECORD

Submitted by

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REG NO: SNG21MCA-2022

In partial fulfillment for the award of the degree in

MASTER OF COMPUTER APPLICATIONS

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Certified that this is a Bonafide record of practical work done by **MUHAMMED HADIF ASHRAF** *to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in* ***Master of Computer Applications*** *of Sree Narayana Gurukulam College of Engineering done during the Academic year 2021-2022.*

Kadayiruppu Course Instructor

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COURSE OUTCOME 1 (CO1)

PROGRAM NO: 1 **DATE: 03/11/2021**

AIM : Familiarizing Text Editor, IDE, Code Analysis Tools etc. // Use any IDE

It is a Graphical User Interface (GUI) where programmers write their code and produce the final products.

An IDE basically unifies all essential tools required for software development and testing, which in turn helps

the programming maximize his output.

- Features of IDE:-

1. Code Editor
2. Syntax Highlighting
3. Auto completion code
4. Debugger
5. Compiler
6. Language Support

IDLE is Python's Integrated Development and Learning Environment.

IDLE has the following features:

- Coded in 100% pure Python, using the tkinter GUI toolkit.
- Cross-platform: works mostly the same on Windows, Unix, and macOS.
- Python shell window (interactive interpreter) with colorizing of code input, output, and error messages.
- Multi-window text editor with multiple undo, Python colorizing, smart indent, call tips, auto completion, and other features.
- Search within any window, replace within editor windows, and search through multiple files (grep).
- Debugger with persistent breakpoints, stepping, and viewing of global and local namespaces.
- Configuration, browsers, and other dialogues.

PROGRAM NO: 2 **DATE: 08/11/2021**

AIM : Write a program to Find Leap Year.

PROGRAM

```
s=int(input("Enter starting year"))
e=int(input("Enter ending year"))
if(s<e):
    print("leap years are",end=" ")
    for i in range(s,e):
        if(i%4==0 and i%100!=0 or i%400==0 and i%100==0):
            print(i,end=" ")
```

OUTPUT

```
================== RESTART: C:/Users/user/Desktop/aadhii/a.py ==================
Enter starting year2001
Enter ending year2020
leap years are 2004 2008 2012 2016
>>>
```

PROGRAM NO: 3 **DATE: 10/11/2021**

AIM : 3.1. Generate positive list of numbers from a given list of integers

PROGRAM

```
for i in [-1,2,3,-87,8,87,-9]:
    if(i>0):
        print(i)
```

OUTPUT

```
2
3
8
87
>>>
```

AIM : 3.2. Write a program to find the Square of N number

PROGRAM

```
n=int(input("Enter limit"))
i=1
print("squares of n numbers")
while(i<=n):
    print(i*i,end=" ")
    i=i+1
```

OUTPUT

```
Enter limit20
squares of n numbers
1 4 9 16 25 36 49 64 81 100 121 144 169 196 225 256 289 324 361 4
00
>>>
```

AIM : 3.3. Form a list of vowels selected from a given word

PROGRAM

```
n=str(input(" Enter Word: "))
print("        The word is: "+n)
print("        The vowel are:  " ,end=" ")
for i in n:
   if i in 'aeiouAEIOU':
       print([i],end=" ")
print(" \n         The remaining letters are:  ",end=" ")
for j in n:
 if j not in 'aeiouAEIOU':
       print([j],end=" ")
print()
print()
```

OUTPUT

```
================= RESTART: C:/Users/user/Desktop/junk/vowels.py =================
 Enter Word: Python Programming
        The word is: Python Programming
        The vowel are:   ['o'] ['o'] ['a'] ['i']
         The remaining letters are:   ['P'] ['y'] ['t'] ['h'] ['n'] [' '] ['P'] ['r'] ['g'] ['r'] ['m'] ['m'] ['n'] ['g']
```

AIM : 3.4. List ordinal value of each element of a word (Hint: use ord() to get ordinal values)

PROGRAM

```
n=str(input("3.4.  Enter any Letter: "))
print("        The Ordinal value of Letter " +n ,":",end=" ")
for i in n:
 print(ord(i),end=" ")
```

OUTPUT

```
============================================================ RESTART: C:/Users/user/Desktop/junk/vowels.py ========================
3.4.  Enter any Letter: s
       The Ordinal value of Letter s : 115
```

PROGRAM NO: 4 **DATE: 15/11/2021**

AIM : Count the occurrences of each word in a line of text.

PROGRAM

```
str1=input("Enter any sentence: ")

wordlist=str1.split()

count= []

for i in wordlist: count.append(wordlist.count(i))

print("count of the occurrence:" + str(list(zip(wordlist, count))))
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/junk/vowels.py ==========
Enter any sentence: aadhi is back
count of the occurrence:[('aadhi', 1), ('is', 1), ('back', 1)]
>>>
```

PROGRAM NO: 5 **DATE: 15/11/2021**

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

PROGRAM

```
n=[]
s=int(input("Enter a limit:  "))
print("Enter  list values")
for i in range(0,s): n.append(int(input()))
print("The list after assinging: ",end=" ")
for i in range(0,len(n)):
  if n[i]<=100:
     print(n[i] ,end=" ")
  else:
     print("over")
```

OUTPUT

```
= RESTART: C:/Users/user/AppData/Local/Programs/Python/Python310/create list rem
oving even numbers.py
Enter a limit:  4
Enter  list values
3
45
101
1000
The list after assinging:  3 45 over
over
>>>
```

PROGRAM NO: 6 **DATE: 17/11/2021**

AIM : Store a list of first names. Count the occurrences of ‘a’ within the list

PROGRAM

```
list1=['a','b','s','a']
occ=list1.count('a')
print("count=",occ)
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
count= 2
>>>
```

PROGRAM NO: 7 **DATE: 17/11/2021**

AIM : Enter 2 lists of integers. Check

(a) Whether list are of same length.

(b) Whether list sums to same value.

(c) Whether any value occur in both.

PROGRAM

```
lst=[1,3,5,7,9,11,34]
lst1=[5,13,45,7,20,65,1]
s=int(0)
c=int(0)

if(len(lst)==len(lst1)):
    print("List are of same length")
else:
    print("list have different length")
for i in range(0,len(lst) and len(lst1)):
    s=s+lst[i]
    c=c+lst1[i]
if(s==c):
  print("equal sum")
else:
  print("not same sum")

print("Elements that matched are:")
l=[]
```

```
for i in range(0,len(lst)):
  for j in range(0,len(lst1)):
    if lst[i]==lst1[j]:
       l.append(lst[i] and lst1[j])
    else:
      continue
print(l)
```

OUTPUT

```
================== RESTART: C:/Users/user/Desktop/aadhii/s.py ==================
List are of same length
not same sum
Elements that matched are:
[1, 5, 7]
>>>
```

PROGRAM NO: 8 **DATE: 22/11/2021**

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

PROGRAM

```
str='ananymous'

char=str[0]

str=str.replace(char,'$')

print(char+str[1:])
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
an$nymous
>>>
```

PROGRAM NO: 9 **DATE: 22/11/2021**

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

PROGRAM

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

newstr = str[-1:] +str[1:-1] + str[:1]

print("New string : ",newstr)
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter a  string : the sixth sense
New string :  ehe sixth senst
>>>
```

PROGRAM NO: 10 **DATE: 24/11/2021**

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

PROGRAM

```
pi=3.14

r = float(input ("Enter the Radius of the circle : "))

result=3.14 * r**2

print ("The Area of the Circle : ", result)
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter the Radius of the circle : 4
The Area of the Circle :  50.24
>>>
```

PROGRAM NO: 11 **DATE: 24/11/2021**

AIM : Write a program to find biggest of 3 numbers entered.

PROGRAM

```
a=int(input("Enter first number"))
b=int(input("Enter second numbers"))
c=int(input("Enter third number"))
if(a>b and a>c):
   print(a,"is largest")
elif(b>c):
   print(b,"is largest")
else:
   print(c,"is largest")
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter first number23
Enter second numbers43
Enter third number54
54 is largest
>>>
```

PROGRAM NO: 12 **DATE: 14/11/2021**

AIM : Accept a file name from user and print extension of that

PROGRAM

```
file= input("Enter filename : ")

f=file.split(".")

print("Extension of the file is : " + f[-1])
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter filename : execute.mp4
Extension of the file is : mp4
>>>
```

PROGRAM NO: 13 **DATE: 29/11/2021**

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

PROGRAM

```
a=[]
n=int(input("Enter limit"))
for i in range(0,n):
    b=input("Enter the color:")
    a.append(b)
print(a)
print(a[0])
print(a[n-1])
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter limit3
Enter the color:blue
Enter the color:green
Enter the color:red
['blue', 'green', 'red']
blue
red
>>>
```

PROGRAM NO: 14 **DATE: 29/11/2021**

AIM : Accept an integer n and compute n+nn+nnn

PROGRAM

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

x=int("%s" % n)

y=int("%s%s" % (n,n))

z=int("%s%s%s" % (n,n,n))

print("n + nn + nnn :",x+y+z)
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter a number : 6
n + nn + nnn : 738
>>>
```

PROGRAM NO: 15 **DATE: 29/11/2021**

AIM : Print out all colors from color-list1 not contained in color-list2.

PROGRAM

```
color_list_1 = set(["White", "pink", "Red","Blue"])
color_list_2 = set(["Red", "Green","pink"])
print(color_list_1.difference(color_list_2))
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
{'Blue', 'White'}
>>>
```

PROGRAM NO: 16 **DATE: 29/11/2021**

AIM : Create a single string separated with space from two strings by swapping the character at position.

PROGRAM

```
a="programming"
b="lab"
print(b[0]+a[1:]+" "+a[0]+b[1:])
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
lrogramming pab
>>>
```

PROGRAM NO: 17 **DATE: 01/12/2021**

AIM : Sort dictionary in ascending and descending order.

PROGRAM

```
import operator

d = {1: 2, 3: 4, 4: 3, 2: 1, 0: 0}

print('Original dictionary : ',d)

sortedic = sorted(d.items(), key=operator.itemgetter(1))

print(' Ascending order : ',sortedic)

sortedic = dict( sorted(d.items(), key=operator.itemgetter(1),reverse=True))

print('Descending order  : ',sortedic)
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Original dictionary :  {1: 2, 3: 4, 4: 3, 2: 1, 0: 0}
 Ascending order :  [(0, 0), (2, 1), (1, 2), (4, 3), (3, 4)]
Descending order  :  {3: 4, 4: 3, 1: 2, 2: 1, 0: 0}
>>>
```

PROGRAM NO: 18 **DATE: 01/12/2021**

AIM : Write a program to merge two dictionaries.

PROGRAM

```
dic1={'a':100,'b':300}
dic2={'c':600,'d':234}
print("Dictonary 1: ", dic1)
print("Dictonary 2 : ", dic2)
dic3=dic1.copy()
dic3.update(dic1)
print("Merged  Dictionary: ", dic3)
```

OUTPUT

```
================== RESTART: C:/Users/user/Desktop/aadhii/s.py ==================
Dictonary 1:  {'a': 100, 'b': 300}
Dictonary 2 :  {'c': 600, 'd': 234}
Merged  Dictionary:  {'a': 100, 'b': 300}
>>>
```

PROGRAM NO: 19 **DATE: 01/12/2021**

AIM : Write a program to find GCD of 2 numbers.

PROGRAM

```
x= int(input("Enter 1st number: "))
y= int(input("Enter 2nd number: "))
i = 1
while(i <= x and i <= y):
    if(x % i == 0 and y% i == 0):
        gcd = i
    i = i + 1
print("GCD :", gcd)
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter 1st number: 34
Enter 2nd number: 32
GCD : 2
>>>
```

PROGRAM NO: 20 **DATE: 01/12/2021**

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

PROGRAM

```
number = [999,998,455,444,323,4444]

print( "Original list:",number)

number = [x for x in number if x%2!=0]

print("list after removing Even numbers:",number)
```

OUTPUT

```
================== RESTART: C:/Users/user/Desktop/aadhii/s.py ==================
Original list: [999, 998, 455, 444, 323, 4444]
list after removing Even numbers: [999, 455, 323]
>>>
```

COURSE OUTCOME 2 (CO2)

PROGRAM NO: 1 **DATE: 06/12/2021**

AIM : Write a program to find the factorial of a number.

PROGRAM

```
n=int(input("Enter a number: "))
f=1
for i in range(1,n+1): f=f*i
print ('Factorial of',n, '=',f)
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter a number: 7
Factorial of 7 = 5040
>>>
```

PROGRAM NO: 2 **DATE: 06/12/2021**

AIM : Write a program to generate Fibonacci series of N terms.

PROGRAM

```
n = int(input("Enter the limit : "))
a = 0
b = 1
sum = 0
count = 1
print("Fibonacci Series :",end= " ")
while(count <= n):
    print(sum, end = " ")
    count += 1
    a = b
    b = sum
    sum = a + b
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter the limit : 45
Fibonacci Series : 0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 41
81 6765 10946 17711 28657 46368 75025 121393 196418 317811 514229 832040 1346269
 2178309 3524578 5702887 9227465 14930352 24157817 39088169 63245986 102334155 1
65580141 267914296 433494437 701408733
>>>
```

PROGRAM NO: 3 **DATE: 06/12/2021**

AIM : Write a program to find the sum of all items in a list.

PROGRAM

```
list1 = [150,240,540]

total = sum(list1)

print("Sum of list : ",total)
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Sum of list :  930
>>>
```

PROGRAM NO: 4 **DATE: 06/12/2021**

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

PROGRAM

```
from math import sqrt as s

for i in range(10,1000):

    if s(i)==int(s(i)) and i%2==0:

     print(i,", ",end=" ")
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
16 ,  36 ,  64 ,  100 ,  144 ,  196 ,  256 ,  324 ,  400 ,  484 ,  576 ,  676 ,
 784 ,  900 ,
>>>
```

PROGRAM NO: 5 **DATE: 06/12/2021**

AIM : Display the given pyramid with step number accepted from user.

PROGRAM

```
rows = int(input("Enter the number of rows: "))
for i in range(1, rows+1):
    for j in range(1,i+1):
        print(i * j, end=' ')
print()
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter the number of rows: 6
1 2 4 3 6 9 4 8 12 16 5 10 15 20 25 6 12 18 24 30 36
>>>
```

PROGRAM NO: 6 **DATE: 06/12/2021**

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

PROGRAM

```
test_str=str(input("Enter the string : "))
freq = {}
for i in test_str:
    if i in freq:
        freq[i] += 1
    else:
        freq[i] = 1
print ("Count of all characters : "+ str(freq))
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter the string : home  alone
Count of all characters : {'h': 1, 'o': 2, 'm': 1, 'e': 2, ' ': 2, 'a': 1, 'l':
1, 'n': 1}
>>>
```

PROGRAM NO: 7 **DATE: 08/12/2021**

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

PROGRAM

```
str=input("Enter a string : ")
print("inputed string is : ",str)
if(str.endswith("ing")):
    str=str+'ly'
else:
    str=str+'ing'
print("The formated string is : ",str)
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter a string :  automotive
inputed string is :   automotive
The formated string is :   automotiveing
>>>
```

PROGRAM NO: 8 **DATE: 08/12/2021**

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

PROGRAM

```
a=[]
n= int(input("Enter the number of elements in list:"))
for x in range(0,n):
    element=input("Enter element: "+str(x+1)+" ")
    a.append(element)
    max1=len(a[0])
    temp=a[0]
for i in a:
    if(len(i)>max1):
        max1=len(i)
        temp=i
    print("Longest Word:",temp)
    print("Length of longest word :",max1)
```

OUTPUT

```
================== RESTART: C:/Users/user/Desktop/aadhii/s.py ==================
Enter the number of elements in list:4
Enter element: 1car
Enter element: 2bike
Enter element: 3bus
Enter element: 4plane
Longest Word: car
Length of longest word : 3
Longest Word: bike
Length of longest word : 4
Longest Word: bike
Length of longest word : 4
Longest Word: plane
Length of longest word : 5
>>>
```

PROGRAM NO: 9 **DATE: 08/12/2021**

AIM : Construct following pattern using nested loop

PROGRAM

```
n= int(input("Enter the limit:"))
for i in range(n):
    for j in range(i):
        print ('* ', end="")
    print('')
for i in range(n,0,-1):
    for j in range(i):
        print('* ', end="")
    print('')
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter the limit:3

*
* *
* * *
* *
*
>>>
```

PROGRAM NO: 10 **DATE: 08/12/2021**

AIM : Generate all factors of a number. def print_factors(x):

PROGRAM

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

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Enter a number:6
The factors of 6 are:
1
2
3
6
>>>
```

PROGRAM NO: 11 **DATE: 08/12/2021**

AIM : Write lambda functions to find area of square, rectangle and triangle.

PROGRAM

```
import math

triangle = lambda b,h : 1/2*b*h

rectangle = lambda l,b : l*b

square = lambda a : a*a


print("Area of Triangle :", triangle(20,90))

print("Area of Rectangle:", rectangle(40,60))

print("Area of Square :", square(20))
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Area of Triangle : 900.0
Area of Rectangle: 2400
Area of Square : 400
>>>
```

COURSE OUTCOME 3 (CO3)

PROGRAM NO: 1 **DATE: 13/12/2021**

AIM : Work with built-in packages.

A) **Random module.**
B) **Time module**
C) **Calendar module**
D) **Math module**
E) **Statistics module**

A) Random module

PROGRAM

```
import random
list1 = [1, 2, 3, 4, 5, 6]
print(random.choice(list1))
print("**************")
import random
random.seed(5)
print(random.random())
print(random.random())
print("************")
import random
r1 = random.randint(5, 15)
print("Random number between 5 and 15 is % s" % (r1))
r2 = random.randint(-10, -2)
print("Random number between -10 and -2 is % d" % (r2))
print("***************")
import random
```

```
list1 = [1, 2, 3, 4, 5, 6]

print(random.choice(list1))

string = "geeks"

print(random.choice(string))

tuple1 = (1, 2, 3, 4, 5)

print(random.choice(tuple1))
```

OUTPUT

```
================== RESTART: C:/Users/user/Desktop/aadhii/s.py ==================
4
**************
0.6229016948897019
0.7417869892607294
***********
Random number between 5 and 15 is 15
Random number between -10 and -2 is -2
**************
1
k
2
>>>
```

B) Time module

PROGRAM

```
import datetime

t=datetime.time(22,56,44)

print(t)

print("hour",t.hour)

print("min",t.minute)

print("se",t.second)

print("mis",t.microsecond)

print("**********************")
```

```
d=datetime.date.today()

print(d)

print("year",d.year)

print("month",d.month)

print("day",d.day)

print(":::::")

d1=datetime.date.today()

print(d1)

td=datetime.timedelta(days=2)

print(td)

d2=d1+td

print(d2)

print("====")

dt=datetime.datetime.combine(d,t)

print(dt)
```

OUTPUT

```
================== RESTART: C:/Users/user/Desktop/aadhii/s.py ==================
22:56:44
hour 22
min 56
se 44
mis 0
**********
2022-02-07
year 2022
month 2
day 7
:::::
2022-02-07
2 days, 0:00:00
2022-02-09
====
```

C) Calendar module

PROGRAM

```
import calendar

month=int(input("Enter month:"))

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

print()

print(calendar.month(year,month))

print(calendar.calendar(2021))
```

OUTPUT

```
================== RESTART: C:/Users/user/Desktop/aadhii/s.py ==================
Enter month:6
Enter year:2022

     June 2022
Mo Tu We Th Fr Sa Su
       1  2  3  4  5
 6  7  8  9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30

                                  2021


      January                   February                  March
Mo Tu We Th Fr Sa Su      Mo Tu We Th Fr Sa Su      Mo Tu We Th Fr Sa Su
             1  2  3       1  2  3  4  5  6  7       1  2  3  4  5  6  7
 4  5  6  7  8  9 10       8  9 10 11 12 13 14       8  9 10 11 12 13 14
11 12 13 14 15 16 17      15 16 17 18 19 20 21      15 16 17 18 19 20 21
18 19 20 21 22 23 24      22 23 24 25 26 27 28      22 23 24 25 26 27 28
25 26 27 28 29 30 31                                29 30 31

       April                     May                       June
Mo Tu We Th Fr Sa Su      Mo Tu We Th Fr Sa Su      Mo Tu We Th Fr Sa Su
          1  2  3  4                   1  2          1  2  3  4  5  6
 5  6  7  8  9 10 11       3  4  5  6  7  8  9       7  8  9 10 11 12 13
12 13 14 15 16 17 18      10 11 12 13 14 15 16      14 15 16 17 18 19 20
19 20 21 22 23 24 25      17 18 19 20 21 22 23      21 22 23 24 25 26 27
```

```
26 27 28 29 30           24 25 26 27 28 29 30      28 29 30
                         31

        July                    August                  September
Mo Tu We Th Fr Sa Su     Mo Tu We Th Fr Sa Su      Mo Tu We Th Fr Sa Su
          1  2  3  4                        1                1  2  3  4  5
 5  6  7  8  9 10 11      2  3  4  5  6  7  8       6  7  8  9 10 11 12
12 13 14 15 16 17 18      9 10 11 12 13 14 15      13 14 15 16 17 18 19
19 20 21 22 23 24 25     16 17 18 19 20 21 22      20 21 22 23 24 25 26
26 27 28 29 30 31        23 24 25 26 27 28 29      27 28 29 30
                         30 31

      October                   November                  December
Mo Tu We Th Fr Sa Su     Mo Tu We Th Fr Sa Su      Mo Tu We Th Fr Sa Su
             1  2  3      1  2  3  4  5  6  7                1  2  3  4  5
 4  5  6  7  8  9 10      8  9 10 11 12 13 14       6  7  8  9 10 11 12
11 12 13 14 15 16 17     15 16 17 18 19 20 21      13 14 15 16 17 18 19
18 19 20 21 22 23 24     22 23 24 25 26 27 28      20 21 22 23 24 25 26
25 26 27 28 29 30 31     29 30                     27 28 29 30 31

>>>
```

D) Math module

PROGRAM

```
import math
print(math.pi)
import math as m
print(m.pi)
print("===============")
from math import pi,sqrt
print(math.pi)
print(sqrt(4))
print("===============")
print("cos",math.cos(90))
print("===============")
```

```
print("sin",math.sin(90))

print("===============")

print("tan",math.tan(0))
```

OUTPUT

```
================== RESTART: C:/Users/user/Desktop/aadhii/s.py ==================
3.141592653589793
3.141592653589793
===============
3.141592653589793
2.0
===============
cos -0.4480736161291701
===============
sin 0.8939966636005579
===============
tan 0.0
>>>
```

F) Statistics module

PROGRAM

```
import statistics

l1=[1,2,3,4,4]

print("mean",statistics.mean(l1))

print("median",statistics.median(l1))

print("mode",statistics.mode(l1))

print("harmonic_mean",statistics.harmonic_mean(l1))

print("statistics_varience",statistics.variance(l1))

print("statistics_median_low",statistics.median_low([-11,5.5,-3.4,7.1,-9,22]))
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
mean 2.8
median 3
mode 4
harmonic_mean 2.142857142857143
statistics_varience 1.7
statistics_median_low -3.4
>>>
```

PROGRAM NO: 2 **DATE: 15/12/2021**

AIM : 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)

PROGRAM

graphicsuse.py

```
from graphics import rectangle
from graphics import circle
from graphics.ThreeD_graphics import cuboid
from graphics.ThreeD_graphics import sphere

l=int(input("Enter the length of rectangle: "))
b=int(input("Enter the breath of rectangle: "))
rectangle.area(l,b)
rectangle.perimeter(l,b)
print()
r=int(input("Enter the Radius of Circle: "))
circle.area(r)
circle.perimeter(r)
print()
l=int(input("Enter the length of Cuboid: "))
b=int(input("Enter the breadth of Cuboid: "))
h=int(input("Enter the height of Cuboid: "))
cuboid.area(l,b,h)
```

```
cuboid.perimeter(l,b,h)


print()
r=int(input("Enter the radius of Sphere: "))
sphere.area(r)
sphere.volume(r)
```

Package : graphics

circle.py

```
def area(r):
    print("Area of Circle: ",3.14*r*r)
def perimeter(r):
    print("Perimeter of Circle: ", 2*3.14*r)
```

rectangle.py

```
def area(l,b):
    print("Area of Rectangle: ", l*b)
def perimeter(l,b):
    print("Perimeter of Rectangle: ", 2*(l+b))
```

Sub-Package : ThreeD_graphics

cuboid.py

```
def area(l,b,h):
    print("Area of Cuboid: ",(2*l*b)+(2*l*h)+(2*h*b))
```

```
def perimeter(l,b,h):
    print("Perimeter of Cuboid: ", 4*(l+b+h))
```

sphere.py

```
def area(r):
    print("Surface Area of Sphere: ",4*3.14*r*r)
def volume(r):
    print("Volume of Sphere: ",(4/3)*3.14*r*r*r)
```

OUTPUT

```
>>> %Run graphicsuse.py
  Enter the length of rectangle: 10
  Enter the breath of rectangle: 20
  Area of Rectangle:  200
  Perimeter of Rectangle:  60

  Enter the Radius of Circle: 5
  Area of Circle:  78.5
  Perimeter of Circle:  31.400000000000002

  Enter the length of Cuboid: 10
  Enter the breadth of Cuboid: 20
  Enter the height of Cuboid: 5
  Area of Cuboid:  700
  Perimeter of Cuboid:  140

  Enter the radius of Sphere: 5
  Surface Area of Sphere:  314.0
  Volume of Sphere:  523.3333333333334
```

COURSE OUTCOME 4 (CO4)

PROGRAM NO: 1 **DATE: 03/01/2022**

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

PROGRAM

```
class Rectangle:

    def __init__(self,length,breadth,ar):

        self.length=length

        self.breadth=breadth

        self.ar=0

    def area(self):

        self.ar=self.length*self.breadth

        #print("area=",self.ar)

        return (self.ar)


    def perimeter(self):

        self.perimeter=2*(self.length+self.breadth)

        #print(perimeter)

        return (self.perimeter)


    def display(self):

        print("area=",self.ar)

        print("perimeter=",self.perimeter)



R1=Rectangle(2,4,0)
```

```
R2=Rectangle(3,4,0)


R1.area()

R1.perimeter()


R2.area()

R2.perimeter()

print("Area of Rectangle1")

R1.display()


print("Area of Rectangle2")

R2.display()




if (R1.ar>R2.ar):

    print(R1.ar,"is graeter")

else:

    print(R2.ar,"is greater")
```

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/s.py ==========
Area of Rectangle1
area= 8
perimeter= 12
Area of Rectangle2
area= 12
perimeter= 14
12 is greater
>>>
```

PROGRAM NO: 2 **DATE: : 05/01/2022**

AIM : 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.

PROGRAM

```
class Bank:
    def __init__(self,bal=0):
        #self.accno=accno
        #self.name=name
        #self.acctype=acctype
        self.bal=bal
        name=input("Enter name:")
        print("Account for",name,"is created")

    def deposit(self):
        amount=int(input("Amount to deposit"))
        self.bal=self.bal+amount
        print("New balance:",self.bal)
    def withdarw(self):
        amount=int(input("Amount to withdraw"))
        if(self.bal>amount):
            self.bal=self.bal-amount
            print("New balance:",self.bal)
        else:
            print("insufficient amount")
            print("balance:",self.bal)

    def display(self):
        print("Current Balance:",self.bal)

print("account")
b1=Bank()
```

```
opt='y'
while(opt=='y'):
    #print("your choice: 1. deposit \n 2. withdraw \n 3. display\n")
    choice=int(input("your choice: 1. deposit \n 2. withdraw \n 3. display\n"))
    if(choice == 1):
        b1.deposit()
    elif(choice==2):
        b1.withdarw()
    elif(choice==3):
        b1.display()
    else:
        print("invalid")


    opt=input("do you want to continue ('y'/'n')")
```

```
================== RESTART: C:/Users/user/Desktop/aadhii/s.py ==================
account
Enter name:hadif
Account for hadif is created
your choice: 1. deposit
 2. withdraw
 3. display
1
Amount to deposit20
New balance: 20
do you want to continue ('y'/'n')y
your choice: 1. deposit
 2. withdraw
 3. display
2
Amount to withdraw10
New balance: 10
do you want to continue ('y'/'n')y
your choice: 1. deposit
 2. withdraw
 3. display
3
Current Balance: 10
do you want to continue ('y'/'n')n
>>>
```

PROGRAM NO: 3 **DATE: : 05/01/2022**

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

PROGRAM

```
class rectangle:
    def __init__(self,length,width):
        self.length=length
        self.width=width
    def __lt__(self,a1):
        area1=self.length*self.width
        area2=a1.length*a1.width
        if(area1>area2):
            return(True)
        else:
            return(False)


print("Enter the Details of Rectangle:1")
l1=int(input("Length:"))
w1=int(input("width:"))
r1=rectangle(l1,w1)
print("Enter the Details of Rectangle:2")
l2=int(input("Length:"))
w2=int(input("width:"))
r2=rectangle(l2,w2)
if(r1>r2):
    print("Rectangle 2 is larger!!")
else:
    print("Rectangle 1 is larger!!")
```

OUTPUT

```
================== RESTART: C:/Users/user/Desktop/aadhii/s.py ==================
Enter the Details of Rectangle:1
Length:20
width:20
Enter the Details of Rectangle:2
Length:50
width:60
Rectangle 2 is larger!!
>>>
```

PROGRAM NO: 4 **DATE: 10/01/2022**

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

PROGRAM

```
class Time:
    def __init__(self,hour,minute,second):
        self.__hour=hour
        self.__minute=minute
        self.__second=second
    def __add__(self,a2):
        second=self.__second+a2.__second
        minute=self.__minute+a2.__minute
        hour=self.__hour+a2.__hour
        if(second>60):
            second=second-60
            minute=minute+1
        if(minute>60):
            minute=minute-60
            hour=hour+1
        return hour,minute,second
print("Enter time1:")
h1=int(input("hour:"))
m1=int(input("minute:"))
s1=int(input("second"))
```

```
t1=Time(h1,m1,s1)


print("Enter time2:")
h2=int(input("hour:"))
m2=int(input("minute:"))
s2=int(input("second"))


t2=Time(h2,m2,s2)


hr,min,sec=t1+t2
print(hr,end=":")
print(min,end=":")
print(sec,end=" ")
```

OUTPUT

```
========== RESTART: C:\Users\user\Desktop\aadhii\s.py ==========
Enter time1:
hour:2
minute:50
second30
Enter time2:
hour:3
minute:43
second32
6:34:2
>>>
```

PROGRAM NO: 5 **DATE: 10/01/2022**

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 overriding.

PROGRAM

```
class publisher:


  def __init__(self,pname):
    self.pname=pname


  def display(self):
   print("Publisher Name:",self.pname)


class book(publisher):


  def get(self,title,author):
    self.title=title
    self.author=author


  def display(self):
   print("Title Name:",self.title)
   print("Author Name:",self.author)


class python(book):
```

```
 def __init__(self,price,nop,pname):
  super().__init__(pname)
  self.price=price
  self.nop=nop

 def details(self):
  print("Price:",self.price)
  print("No of pages:",self.nop)

s1=python(450,72,"K D")
s1.get("Flames","K D")
s1.display()
s1.details()
```

OUTPUT

```
========== RESTART: C:\Users\user\Desktop\aadhii\s.py ==========
Title Name: wings of fire
Author Name: K D
Price: 450
No of pages: 72
>>>
```

COURSE OUTCOME 5 (CO5)

PROGRAM NO: 1 **DATE: 17/01/2022**

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

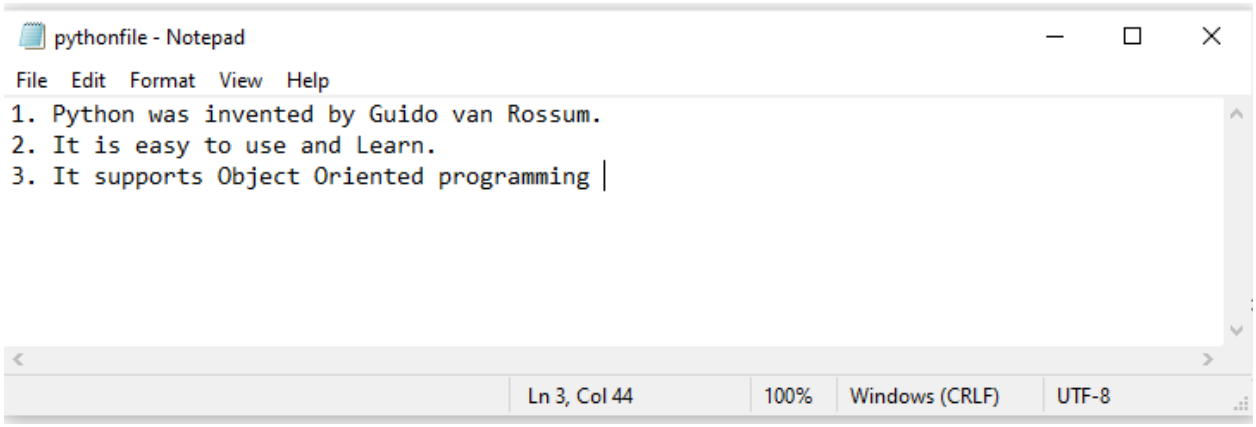
PROGRAM

```
file=open("pythonfile.txt","w")
file.write("1. Python was invented by Guido van Rossum.\n2. It is easy to use and Learn.\n3. It supports
Object Oriented programming ")
file.close()

file=open("pythonfile.txt","r") #("filename","mode of file")(there are 6 mode)
file.seek(0,0)
ff=file.readlines()

for x in range(0,len(ff)):
    print(ff[x])
print()
print(ff)
file.close()
```

pythonfile.txt



OUTPUT

```
================== RESTART: C:\Users\user\Desktop\aadhii\s.py ==================
1. Python was invented by Guido van Rossum.

2. It is easy to use and Learn.

3. It supports Object Oriented programming

['1. Python was invented by Guido van Rossum.\n', '2. It is easy to use and Learn.\n', '3. It supports Object Oriente
d programming ']
>>>
```

PROGRAM NO: 2 **DATE: 17/01/2022**

AIM : Write a program to copy odd lines of one file to other.

PROGRAM

```
file1=open("pythonfile.txt","r")
for x in file1:
    print(x)
file1.seek(0,0)
print("------------------------------------------------------------")
print()

print("Odd Line: ",end=" ")
file2=open("odd.txt","w")
ff=file1.readlines()
with open('odd.txt','w') as file2:
    for x in range(0,len(ff)):
       if(x%2!=0):
          print(ff[x])
          file2.write(ff[x])
```

OUTPUT

```
========== RESTART: C:\Users\user\Desktop\aadhii\s.py ============
1. Python was invented by Guido van Rossum.

2. It is easy to use and Learn.

3. It supports Object Oriented programming
------------------------------------------------------------

Odd Line:  2. It is easy to use and Learn.

>>>
```

PROGRAM NO: 3 **DATE: 31/01/2022**

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

PROGRAM

```
import csv

filename = "username.csv"

fields = []
rows = []

ff=open(filename, 'r')
csvreader = csv.reader(ff)
fields = next(ff)
print(fields)
for r in csvreader:
    rows.append(r)
print(rows)
print("-----------------------------------------------------------")
print('\nFirst 4 Rows are: \n')
for r in rows[:4]:
    print(*r)
print("-----------------------------------------------------------")
print()
print("The File Content")
print()
```

```
for xy in rows:
    for z in xy:
        print(z)
print("-------------------------------------------------------------")
print()
 #print(z,end=" ")
print()
ff.close()
```

username.csv

	A	B	C	D	E	F	G
1	UserName; Password; FirstName; LastName						
2	hadif45; 4563; Hadif; Ash						
3	sam46; 4464; Sam; Sam						
4							
5							
6							
7							

OUTPUT

```
================== RESTART: C:\Users\user\Desktop\aadhii\s.py ==================
UserName; Password; FirstName; LastName

[['hadif45; 4563; Hadif; Ash'], ['sam46; 4464; Sam; Sam']]
-------------------------------------------------------------

First 4 Rows are:

hadif45; 4563; Hadif; Ash
sam46; 4464; Sam; Sam
-------------------------------------------------------------

The File Content

hadif45; 4563; Hadif; Ash
sam46; 4464; Sam; Sam
-------------------------------------------------------------
```

PROGRAM NO: 4 **DATE: 31/01/2022**

AIM : Write a Python program to read specific columns of a given CSV file and print the content of the columns.

PROGRAM

```
import csv
filename = "details.csv"
ff=open(filename, 'r')
 #csvreader = csv.reader(ff)
data = csv.DictReader(ff)
print("No.  Brand  Model")
for x in data:
    print(x['No'], x['Brand'], x[‘Model'])
```

details.csv

	A	B	C	D	E
1	No	Brand	Model		
2	1	Apple	4s		
3	2	Samsung	S6		
4	3	OnePlus	7T		
5					
6					

OUTPUT

```
========== RESTART: C:/Users/user/Desktop/aadhii/a.py ==========
No.  Brand  Model
1 Apple 4s
2 Samsung S6
3 OnePlus 7T
>>>
```

PROGRAM NO: 5 **DATE: 31/01/2022**

AIM : Write a Python program to write a Python dictionary to a csv file. After writing the CSV file read the CSV file and display the content.

PROGRAM

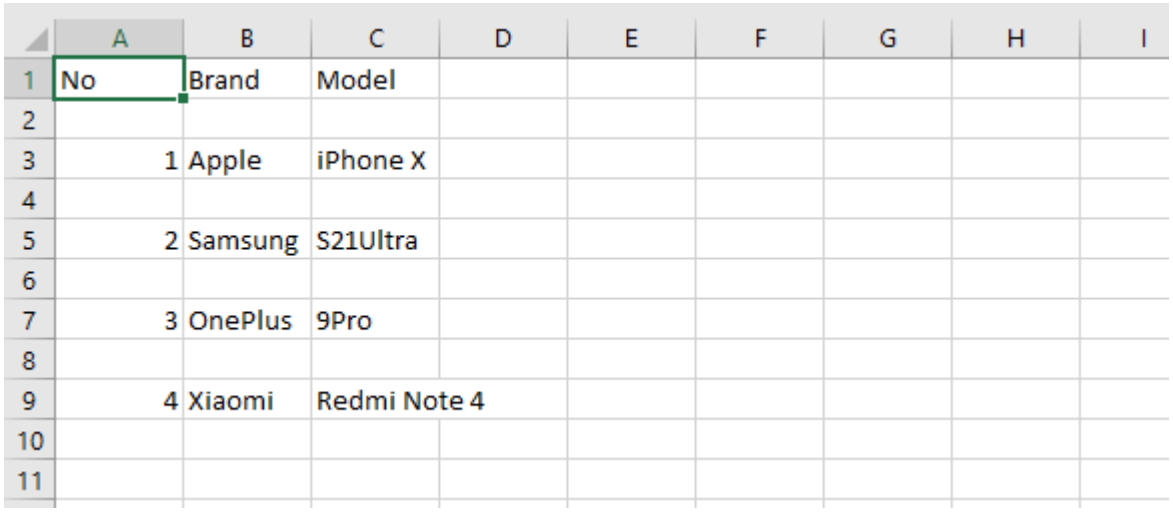
```
import csv
field_names = ['No', 'Brand', 'Model']
mobs = [
{'No': 1, 'Brand': 'Apple', 'Model': 'iPhone X'},
{'No': 2, 'Brand': 'Samsung', 'Model': 'S21Ultra'},
{'No': 3, 'Brand': 'OnePlus', 'Model': '9Pro'},
{'No': 4, 'Brand': 'Xiaomi', 'Model': 'Redmi Note 4'},
 ]
with open("mobdetails.csv", "w") as csvfile:
    writer = csv.DictWriter(csvfile, fieldnames = field_names)
    writer.writeheader()
    writer.writerows(mobs)#print(".....")
filename = "mobdetails.csv"
ff=open(filename, 'r')
rows=[]
csvreader = csv.reader(ff)
for r in csvreader:
    rows.append(r)
for r in rows[:4]:
    print(*r)
```

OUTPUT

```
====== RESTART: C:/Users/user/Desktop/aadhii/a.py =====
No Brand Model

1 Apple iPhone X

>>>
```



	A	B	C	D	E	F	G	H	I
1	No	Brand	Model						
2									
3	1	Apple	iPhone X						
4									
5	2	Samsung	S21Ultra						
6									
7	3	OnePlus	9Pro						
8									
9	4	Xiaomi	Redmi Note 4						
10									
11									