# SREE NARAYANA GURUKULAM COLLEGE OF ENGINEERING

## KADAYIRUPPU, KOLENCHERY 682 311

**(Affiliated to APJ Abdul Kalam Technological University)**

**ACADEMIC YEAR 2021-22**



## 20 MCA 132 PROGRAMMING LABORATORY RECORD

*Submitted by*

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## REG NO: SNG21MCA-2023

*in partial fulfillment for the award of the degree in*

*MASTER OF COMPUTER APPLICATIONS*

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# ENGINEERING KADAYIRUPPU, KOLENCHERY 682 311

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## 20 MCA 132 PROGRAMMING LABORATORY RECORD

*Certified that this is a Bonafide record of practical work done by **Muhammed Rashid A P** 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 2021-22.*

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Date: …………..…….


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Submitted for University Practical Examination

**Reg No:  SNG21MCA-2023**          **on**   ------------


External Examiner                                                           InternalExaminer

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# I. COURSE OUTCOME 1(CO1)

**PROGRAM NO:** 1

**DATE:24/11/2021**

**AIM:** Familiarizing Text Editor, IDE, Code Analysis Tools etc // Use any IDE like PyCharm, PyDev…

A text editor is a tool that allows a user to create and revise documents in a computer.

An integrated development environment (IDE) is a software application that provides comprehensive facilities to computer programmers for software development.

An IDE normally consists of at least a source code editor,build automation tools and a debugger

Source code analysis tools, also known as Static Application Security Testing (SAST) Tools, can help analyze source code or compiled versions of code to help find security flaws.

## Top Python IDE's

- PyCharm
- Spyder
- Eclipse PyDev
- Wing
- IDLE

## PyCharm

In industries most of the professional developers use PyCharm and it has been considered the best IDE for python developers.It was developed by the Czech company JetBrains and it's a cross-platform IDE.

- It is considered as an intelligent code editor, fast and safe refactoring, and smart code.

- Features for debugging, profiling, remote development, testing the code, auto code completion, quick fixing, error detection and tools of the database.

- Support for Popular web technologies, web frameworks, scientific libraries and version control.

**PROGRAM NO:** 2

**DATE:24/11/2021**

**AIM:**Display future leap years from current year to a final year entered by user.

```
print("Future Leap years")
print("enter the starting year")
start=int(input())
print("enter the final year")
end=int(input())
print("start year",start,"\nend year",end)
for y in range(start,end):
    if (y % 4 == 0) and (y % 100 != 0) or (y % 400 == 0):
      print(y)
```

**OUTPUT**

Future Leap years
enter the starting year
2022
enter the final year
2050
start year 2022
end year 2050
2024
2028
2032
2036
2040
2044
2048

**PROGRAM NO:** 3

**DATE:24/11/2021**

**AIM:** List comprehensions:

- **Generate positive list of numbers from a given list of integers**

    ```
    list1=[-10,20,35,-67,70]
    re=[num for num in list1 if num>=0]
    print("The positive integers",re)
    ```

    **OUTPUT**

    The positive integers [20, 35, 70]

- **Square of N number**

    ```
    n=int(input("Enter limit:"))
    squarelist=[i**2 for i in range(1,n+1)]
    print("square of n numbers:",squarelist)
    ```

    **OUTPUT**

    Enter limit:8
    square of n numbers: [1, 4, 9, 16, 25, 36, 49, 64]

- **Form a list of vowels selected from a given word**

    ```
    word=str(input("Enter the word:"))
    print("the original string is:"+word)
    print(" the vowels are:",end=" ")
    for i in word:
        if i in 'aeiouAEIOU':
            print([i],end=" ")
    ```

**OUTPUT**

Enter the word:HELLO WORLD
the original string is:HELLO WORLD
the vowels are: ['E'] ['O'] ['O']

- **List ordinal value of each element of a word (Hint: use ord() to get ordinal values)**

```
w=input("Enter the word:")
print("ordinal value corresponding to each element is ")
for i in w:
    print(i,end=":")
    print(ord(i),end=" ")
```

**OUTPUT**

Enter the word:HELLOhello
ordinal value corresponding to each element is
H:72 E:69 L:76 L:76 O:79 h:104 e:101 l:108 l:108 o:111

**PROGRAM NO:** 4

**DATE:24/11/2021**

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

```
str1=input("Enter a string")
wordlist=str1.split()
count=[]
for w in wordlist:
     count.append(wordlist.count(w))
print("count of the occurence:"+str(list(zip(wordlist,count))))
```

**OUTPUT**

Enter a stringhow is this work
count of the occurence:[('how', 1), ('is', 1), ('this', 1), ('work', 1)]

**PROGRAM NO:** 5

**DATE:24/11/2021**

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

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

   **OUTPUT**

Enter a limit4

enter values

100

200

69

99

the list after assinging:

over

over

69

99

**PROGRAM NO:** 6

**DATE:24/11/2021**

**AIM:**Store a list of first names. Count the occurrences of 'a' within the list

```
a=["a","b","c","a","a"]
print("list:",a)
occ=a.count("a")
print("count of occurence of a:",occ)
```

**OUTPUT**

```
list: ['a', 'b', 'c', 'a', 'a']
count of occurence of a: 3
```

**PROGRAM NO:** 7

**DATE:24/11/2021**

**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

```python
list1=[]
list2=[]
s1=0
s2=0
n1=int(input("Enter the number of elements in list1:"))
for i in range(n1):
    x=int(input("Enter the elements:"))
    s1=s1+x
    list1.append(x)
n2=int(input("\nEnter the number of elements in list2:"))
for i in range(n2):
    x=int(input("Enter the elements:"))
    s2=s2+x
    list2.append(x)
print("\nlist1\n",list1)
print("\nlist2\n",list2)



if len(list1)==len(list2):
    print("\nLength of 2 list is same")
else:
```

```
    print("\nLength of 2 list is not same")
if s1 == s2:
  print("Sum is equal")
else:
print("Sum is not equal")
print("common elements:",set(list1).intersection(set(list2)))
```

**OUTPUT**

```
Enter the number of elements in list1:3
Enter the elements:1
Enter the elements:2
Enter the elements:3
Enter the number of elements in list2:3
Enter the elements:3
Enter the elements:4
Enter the elements:5
list1
 [1,2,3]
list2
 [3,4,5]
Length of 2 list is same
Sum is not equal
common elements: {3}
```

**PROGRAM NO:** 8

**DATE:24/11/2021**

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

```
str1=str(input("enter the string:"))
char=str1[0]
str1=str1.replace(char,'$')
str1=char+str1[1:]
print(str1)
```

**OUTPUT**

```
enter the string:malayalam
malayala$
```

**PROGRAM NO:** 9

**DATE:24/11/2021**

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

```
str=input("enter a string:")
new_str=str[-1:]+str[1:-1]+str[:1]
print("New string: ",new_str)
```


**OUTPUT**

Enter a string:python java
New string:    aython javp

**PROGRAM NO:** 10

**DATE:24/11/2021**

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

```
r=float(input("Enter the radius:"))
print("radius=",r)
area=3.14*r*r
print("Area=",'%.2f'%area)
```

**OUTPUT**

```
Enter the radius:2
radius= 2.0
Area= 12.56
```

**PROGRAM NO:** 11

**DATE:29/11/2021**

**AIM:**Find biggest of 3 numbers entered

```
n1=int(input("Enter the first number:"))
n2=int(input("Enter the second number:"))

n3=int(input("Enter the third number:"))
large=n1
if(n2>large):
  large=n2
if(n3>large):
  large=n3
print("Largest number is:",large)
```

**OUTPUT**

```
Enter the first number:3
Enter the second number:44
Enter the third number:22
Largest number is: 44
```

**PROGRAM NO:** 12

**DATE:29/11/2021**

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

```
file1=input("Enter the file name:")
ext=file1.split('.')
print("File Name=",file1)
print("File Extension=",ext[-1])
```

**OUTPUT**

Enter the file name:hello.java
File Name= hello.java
File Extension= java

**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.

list1=[]

n=int(input("Enter the number of colors:"))

for i in range(n):

  x=input("Enter the color:")

  list1.append(x)

print("\nList:",list1)

print("First color:",list1[0])

print("last color:",list1[n-1])

**OUTPUT**

```
Enter the number of colors:3
Enter the color:blue
Enter the color:black
Enter the color:yellow
List: ['blue', 'black', 'yellow']
First color: blue
last color: yellow
```

**PROGRAM NO:** 14

**DATE:29/11/2021**

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

```
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**

```
enter a number:5
n+nn+nnn: 615
```

**PROGRAM NO:** 15

**DATE:29/11/2021**

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

```
list1=["black","green","red"]
list2=["black","blue","red"]
print(color1.difference(color2))
```

**OUTPUT**

{'green', 'blue'}

**PROGRAM NO:** 16

**DATE:29/11/2021**

**AIM:**Create a single string separated with space from two strings by swapping the character at position 1.

```python
a=str(input("enter string:"))
b=str(input("enter string:"))
p1=a[0]
p2=b[0]
c=b[0]+a[1:len(a)]+" "+a[0]+b[1:len(b)]
print(c)
```

**OUTPUT**

Enter string:python
enter string:java
jython pava

**PROGRAM NO:** 17

**DATE:29/11/2021**

**AIM:**Sort dictionary in ascending and descending order.

```
import operator
d={5:22,7:4,3:5}
print("Old Dictionary:\n",d)

print("\nSorted dictionary by value in ascending order:")
print(sorted(d.items(),key=operator.itemgetter(1)))

print("\nSorted dictionary by value in descending order:")
rev=dict(sorted(d.items(),key=operator.itemgetter(1),reverse=True))
print(rev)
```

**OUTPUT**

Old Dictionary:
 {5: 22, 7: 4, 3: 5}

Sorted dictionary by value in ascending order:
[(7, 4), (3, 5), (5, 22)]

Sorted dictionary by value in descending order:
{5: 22, 3: 5, 7: 4}

**PROGRAM NO:** 18

**DATE:29/11/2021**

**AIM:**Merge two dictionaries

```
d1={1:4,2:5,3:8}
print("First dictionary:",d1)
d2={1:6,2:8,4:9}

print("Second dictionary:",d2)
d3=d1.copy()
d3.update(d2)
print("Merged dictionary:",d3)
```

**OUTPUT**

First dictionary: {1: 4, 2: 5, 3: 8}
Second dictionary: {1: 6, 2: 8, 4: 9}
Merged dictionary: {1: 6, 2: 8, 3: 8, 4: 9}

**PROGRAM NO:** 19

**DATE:29/11/2021**

**AIM:**Find gcd of 2 numbers.

```
n1=int(input("Enter the first number:"))

n2=int(input("Enter the second number:"))
i=1
while i<=n1 and i<=n2:
  if(n1%i==0 and n2%i==0):
     gcd=i
  i=i+1
print("Gcd=",gcd)
```

**OUTPUT**

Enter the first number:20
Enter the second number:40

Gcd= 20

**PROGRAM NO:20**

**DATE:29/11/2021**

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

```
list1=[]
list2=[]
n=int(input("Enter the limit:"))
for i in range(n):
  x=int(input("Enter the element:"))
  list1.append(x)
  if x%2!=0:
    list2.append(x)
print("\nEntered List:",list1)
print("\nResultant List:",list2)
```

**OUTPUT**

```
Enter the limit:4
Enter the element:11

Enter the element:22
Enter the element:33
Enter the element:44

Entered List: [11, 22, 33, 44]
Resultant List: [11, 33]
```

## II. COURSE OUTCOME 2(CO2)

**PROGRAM NO:** 1

**DATE:1/12/2021**

**AIM:**Program to find the factorial of a number

```
n1=int(input("Enter the number:"))
f=1
for i in range(1,n1+1):
    f=f*i
print("Factorial of",n1,"is:",f)
```

**OUTPUT**

```
Enter the number:6
Factorial of 6 is: 720
```

**PROGRAM NO:** 2

**DATE:1/12/2021**

**AIM:**Generate Fibonacci series of N terms

```python
n=int(input("Enter the limit:"))
f=0
s=1
r=0
c=1
print("Fibonacci series:")
while c<=n:
    print(r,end=" ")
    c=c+1
    f=s
    s=r
    r=f+s
```

**OUTPUT**

```
Enter the limit:4
Fibonacci series:
0 1 1 2
```

**PROGRAM NO:** 3

**DATE:1/12/2021**

**AIM:**Find the sum of all items in a list

```python
list1=[]
s=0
n=int(input("Enter the limit:"))
for i in range(n):
    x=int(input("Enter the number:"))
    list1.append(x)
    s=s+x
print("List:",list1)

print("Sum=",s)
```

**OUTPUT**

```
Enter the limit:4
Enter the number:2
Enter the number:3
Enter the number:2
Enter the number:1
List: [2, 3, 2, 1]
Sum= 8
```

**PROGRAM NO:** 4

**DATE:1/12/2021**

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

```
import math

n=int(input("Enter the limit:"))

print("Perfect numbers:\n")

for i in range(1000,n+1):

  t=int(math.sqrt(i))

if t*t==i and i%2==0:

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

**OUTPUT**

```
Enter the limit:1200
Perfect numbers:
1024 1156
```

**PROGRAM NO:**5

**DATE:1/12/2021**

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

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

**OUTPUT**

```
Enter the limit:4
1

2 4

3 6 9

4 8 12 16
```

**PROGRAM NO:**6

**DATE:1/12/2021**

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

```
  str1=input("Enter the string:")
 f={}
for i in str1:
  if i in f:
    f[i]=f[i]+1
  else:
    f[i]=1
print(f)
```

**OUTPUT**

Enter the string:messi

{'m': 1, 'e': 1, 's': 2, 'i': 1}

**PROGRAM NO:7**

**DATE:8/12/2021**

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

```python
str=input("Enter the string:")

print("Entered string:",str)

if(str.endswith("ing")):

  str=str+"ly"

else:

  str=str+"ing"

print("Resultant string:",str)
```

**OUTPUT**

```
Enter the string:play
Entered string: play
Resultant string: playing
```

**PROGRAM NO:**8

**DATE:8/12/2021**

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

```
        list1=[]
  n=int(input("Enter the number of strings:"))
  for i in range(n):
    str=input("Enter the string:")
    list1.append(str);
  lword=list1[0]
  max=len(list1[0])
  for i in list1:
    if(len(i)>max):
      max=len(i)
      lword=i
  print("Longest word:",lword)


  print("Length:",max)
```

**OUTPUT**

Enter the number of strings:3
Enter the string:hai
Enter the string:hello
Enter the string:hi
Longest word: hello
Length: 5

**PROGRAM NO:**9

**DATE:8/12/2021**

**AIM:**Construct following pattern using nested loop

```
*

* *

* * *

* * * *

* * * *

* * *

* *

*
```

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

**OUTPUT**

**Enter the limit:4**

```
*

* *

* * *

* * * *

* * * *

* * *

* *

*
```

**PROGRAM NO:**10

**DATE:8/12/2021**

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

```python
def fact(n):
print("Factors of",n,":")
for i in range(1,n+1):
  if n%i==0:
    print(i)
n=int(input("Enter the number:"))
fact(n)
```

**OUTPUT**

```
Enter the number:16
Factors of 16 :
1
2
4
8
16
```

**PROGRAM NO:**11

**DATE:8/12/2021**

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

```
a_sq=lambda a:a*a
a_rec=lambda l,b:l*b
a_tri=lambda b,h:1/2*b*h


print("Area of square=",a_sq(2))
print("Area of rectangle=",a_rec(2,2))
print("Area of triangle=",a_tri(2,5))
```

**OUTPUT**

```
Area of square= 4
Area of rectangle= 4
Area of triangle= 5.0
```

**III. COURSE OUTCOME 3(CO3)**

**PROGRAM NO:** 1

**DATE:15/12/2021**

**AIM:**Work with built-in packages

**Time Module**

```
import time
print("Current time in sec:",time.time())
print("Current time:",time.ctime())
print("Time After 30 sec:",time.ctime(time.time()+30))
t=time.localtime()
print("Time:",t)
print("Time-current year:",t.tm_year)
print("Time:-current month",t.tm_mon)
print("Time:-current day",t.tm_mday)
print("Time:-current hour",t.tm_hour)
print("Time:-current minute",t.tm_min)
print("Time:-current sec",t.tm_sec)
print("Time:-current week day",t.tm_wday)
print("Time:-current year day",t.tm_yday)
```

 **OUTPUT**


 Current time in sec: 1639915265.630671


 Current time: Sun Dec 19 17:31:05 2021
 Time After 30 sec: Sun Dec 19 17:31:35 2021


  Time: time.struct_time(tm_year=2021, tm_mon=12, tm_mday=19, tm_hour=17,
   tm_min=31, tm_sec=5, tm_wday=6, tm_yday=353, tm_isdst=0)
 Time-current year: 2021
 Time:-current month 12
 Time:-current day 19

Time:-current hour 17

Time:-current minute 31
Time:-current sec 5
Time:-current week day 6
Time:-current year day 353

## Math module

```
import math
print(math.factorial(4))
print (math.gcd(3, 6))
print (math.sqrt(9))
```

**OUTPUT**

```
24
3
3.0
```

## Calendar module

```
import calendar
mm=int(input("Enter month:"))
yy=int(input("Enter year:"))
print("\n")
print(calendar.month(yy,mm))
```

**OUTPUT**
Enter month:1
Enter year:2022

```
    January 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
```

31

## DateTime module

```
import datetime
t=datetime.time(22,56,20,67)
print(t)
print("Hour",t.hour)
print("Minutes",t.minute)
print("Seconds",t.second)
print("Microsecond:",t.microsecond)
print("\n")
d=datetime.date.today()
print(d)
print("Year:",d.year)
print("Month:",d.month)
print("Day:",d.day)
d1=datetime.date.today()
print(d1)
td=datetime.timedelta(days=2)
print(td)

d2=d1+td
print(d2)
dt=datetime.datetime.combine(d1,t)
print(dt)
```

**OUTPUT**

```
22:56:20.000067
Hour 22
Minutes 56
Seconds 20
Microsecond: 67


2021-12-19
Year: 2021
```

Month: 12
Day: 19
2021-12-19
2 days, 0:00:00
2021-12-21
2021-12-19 22:56:20.000067

## Statistics module

```
import statistics
print(statistics.mean([3,4,3]))
print(statistics.median([1, 3, 5, 7, 9, 11, 13]))
print(statistics.mode([1, 1, -3, 3, 7, -9]))
print(statistics.variance([1, 3, 5, 7, 9, 11]))


print(statistics.stdev([1, 3, 5, 7, 9, 11]))
```

## OUTPUT

```
3.3333333333333335
7
1
14
3.7416573867739413
```

## Random module

```
import random
random.seed(10)
print(random.random())
mylist = ["apple", "banana", "cherry"]
print(random.sample(mylist, k=2))
print(random.random())
mylist2 = ["apple", "banana", "cherry"]
random.shuffle(mylist2)
print(mylist2)
mylist3 = ["apple", "banana", "cherry"]
print(random.choice(mylist3))
```

**OUTPUT**

0.5714025946899135
['banana', 'cherry']
0.5780913011344704
['cherry', 'banana', 'apple']
banana

**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)

- **graphics package**

  **circle module**

  ```
  def area(r):
    return(3.14*r*r)

  def perimeter(r):
    return(2*3.14*r)
  ```

  **rectangle module**

  ```
  def area(l,b):
    return(l*b)

  def perimeter(l,b):
    return(2*(l+b))
  ```

- **3dgraphics package**

  **sphere module**

  ```
  def area(r):
    return(4*3.14*r*r)
  ```

```
def perimeter(r):
 return(2*3.14*r)
```

**cuboid module**

```
def area(l,w,h):
 return(2*l*w+2*l*h+2*h*w)

def perimeter(l,b,h):
 return(4*(l+b+h))

from graphics import rectangle
from graphics import circle
from dgraphics import cuboid
from dgraphics import sphere

print("Rectangle:")
l=int(input("Enter the length:"))
b=int(input("Enter the breadth:"))
print("Area=",rectangle.area(l,b))
print("Perimeter=",rectangle.perimeter(l,b))

print("\nCircle:")
r=int(input("Enter the radius:"))
print("Area=",circle.area(r))
print("Perimeter=",circle.perimeter(r))

print("\nCuboid:")

l=int(input("Enter the length:"))
w=int(input("Enter the width:"))
h=int(input("Enter the height:"))
b=int(input("Enter the breadth:"))
print("Area=",cuboid.area(l,w,h))
print("perimeter=",cuboid.perimeter(l,b,h))

print("\nSphere:")
r=int(input("Enter the radius:"))
print("Area=",sphere.area(r))
```

print("perimeter=",sphere.perimeter(r))

**OUTPUT**

Rectangle:
Enter the length:2
Enter the breadth:2
Area= 4
Perimeter= 8

Circle:
Enter the radius:2
Area= 12.56
Perimeter= 12.56

Cuboid:
Enter the length:2
Enter the width:2
Enter the height:1
Enter the breadth:2
Area= 16
perimeter= 20
Sphere:
Enter the radius:2
Area= 50.24
perimeter= 12.56

## IV. COURSE OUTCOME 4(CO4)

**PROGRAM NO:** 1

**DATE:**9/1/2022

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

```python
class rectangle:
    def __init__(self,length,breadth):
        self.length=length
        self.breadth=breadth

    def area(self):
        area=self.length*self.breadth
        print("Area=",area)
        return(area)

    def perimeter(self):
        per=2*(self.length+self.breadth)
        print("Perimeter=",per)

print("First Rectangle:")
b1=rectangle(2,2)
a1=b1.area()
b1.perimeter()

print("\nSecond Rectangle:")
b2=rectangle(3,3)
a2=b2.area()
b2.perimeter()

if a1 > a2:
    print("\nArea of first rectangle is larger")
else:
```

```
    print("\nArea of second rectangle is larger")
```

**OUTPUT**

First Rectangle:
Area= 4
Perimeter= 8

Second Rectangle:
Area= 9
Perimeter= 12

Area of second rectangle is larger

**PROGRAM NO:** 2

**DATE:9/1/2022**

**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.

```
class bank:
  bal=0
  def __init__(self,accno,name,ac_type,bal):
    self.accno=accno
    self.name=name
    self.ac_type=ac_type
    self.bal=bal

  def display(self):
    print("\nAccount Info:")
    print("Account Number:",self.accno)
    print("Account Name:",self.name)
    print("Account Type:",self.ac_type)
    print("Account Balance:",self.bal)

  def deposit(self):
    dep=int(input("Enter the amount to deposit:"))
    self.bal=self.bal+dep

  def withdraw(self):
    w=int(input("Enter the amount to withdraw:"))
    if w > self.bal:
      print("Insufficient Balance")
    else:
      self.bal=self.bal-w
      print("RS-",w,"Withdrawn successfully")

acc_no=int(input("Enter the Account Number:"))
acc_name=input("Enter the name:")
```

```
acc_type=input("Enter the account type-(savings/current):")
balance=int(input("Enter the initial balance:"))
b1=bank(acc_no,acc_name,acc_type,balance)

while(1):
  print("\n1.Account Info\n2.Deposit\n3.Withdraw\n4.Exit")
  opt=int(input("Select your option:"))
  if opt == 1:
    b1.display()
  elif opt == 2:
    b1.deposit()
  elif opt == 3:
    b1.withdraw()
  elif opt == 4:
    print("Exited")
    break
  else:
    print("Invalid Option")
```

**OUTPUT**

Enter the Account Number:1233
Enter the name:Rashid
Enter the account type-(savings/current):savings
Enter the initial balance:2000

1.Account Info
2.Deposit
3.Withdraw
4.Exit
Select your option:2
Enter the amount to deposit:200

1.Account Info
2.Deposit
3.Withdraw
4.Exit
Select your option:1

Account Info:
Account Number: 1233
Account Name: Rashid
Account Type: savings
Account Balance: 2200

1.Account Info
2.Deposit
3.Withdraw
4.Exit
Select your option:3
Enter the amount to withdraw:100
RS- 100 Withdrawn successfully

1.Account Info
2.Deposit
3.Withdraw
4.Exit
Select your option:1

Account Info:
Account Number: 1233
Account Name: Rashid
Account Type: savings
Account Balance: 2100

1.Account Info
2.Deposit
3.Withdraw
4.Exit
Select your option:4
Exited

**PROGRAM NO:** 3

**DATE:9/1/2022**

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

```python
class rectangle:

    def __init__(self,l,b):
        self.__length=l
        self.__breadth=b

    def area(self):
        self.area=self.__length*self.__breadth
        print("Area=",self.area)

    def __lt__(self,second):
        if self.area < second.area:
            return True
        else:
            return False

print("first Rectangle:")
len1=int(input("Enter the length:"))
bread1=int(input("Enter the breadth:"))
obj1=rectangle(len1,bread1)
obj1.area()

print("\nSecond Rectangle:")
len2=int(input("Enter the length:"))
bread2=int(input("Enter the breadth:"))
obj2=rectangle(len2,bread2)
obj2.area()
if obj1 < obj2 :
    print("\nArea of second rectangle is larger:")
else:
    print("\nArea of first rectangle is larger:")
```

**OUTPUT**

first Rectangle:
Enter the length:2
Enter the breadth:3
Area= 6

Second Rectangle:
Enter the length:2
Enter the breadth:2
Area= 4

Area of first rectangle is larger:

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

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

  def __add__(self,second):
    print("\nHour:",self.__hour + second.__hour)

    if self.__minute + second.__minute > 60:
      h1=(self.__minute + second.__minute)//60
      m1=(self.__minute + second.__minute)%60
      print("Minutes:",h1," hour ",m1," minutes")
    else:
      print("Minutes:",self.__minute + second.__minute)

    if self.__second+second.__second > 60:
      m1=(self.__second+second.__second)//60
      s1=(self.__second+second.__second)%60
      print("seconds:",m1," minutes ",s1," seconds")
    else:
      print("Seconds:",self.__second + second.__second)




hour1=int(input("Enter the hour:"))
minute1=int(input("Enter the minutes:"))
sec1=int(input("Enter the second:"))

obj1=time(hour1,minute1,sec1)

hour2=int(input("\nEnter the hour:"))
```

```
minute2=int(input("Enter the minutes:"))
sec2=int(input("Enter the second:"))

obj2=time(hour2,minute2,sec2)

obj1 + obj2
```

**OUTPUT**

```
Enter the hour:3
Enter the minutes:44
Enter the second:35

Enter the hour:4
Enter the minutes:55
Enter the second:45

Hour: 7
Minutes: 1    hour    39    minutes
seconds: 1    minutes    20    seconds
```

**PROGRAM NO:5**

**DATE:9/1/2022**

**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.

```python
        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**

Title Name: Flames
Author Name: K D
Price: 450
No of pages: 72

## V. COURSE OUTCOME 5(CO5)

**PROGRAM NO:** 1

**DATE:30/1/2022**

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

```
f1=open("sample.txt","w")
f1.write("This is my first line.\n This is my second line \n This is my third line")
f1=open("sample.txt","r")
ff=f1.readlines()
print(ff)
```

**OUTPUT**

['This is my first line.\n', ' This is my second line \n', ' This is my third line']

This is my first line.
  This is my second line
  This is my third line

## PROGRAM NO: 2

**DATE:30/1/2022**

**AIM:** Python program to copy odd lines of one file to other

```python
f1=open("sample.txt","r")
ff=f1.readlines()
with open("odd.txt","w") as f2:
    for x in range(0,len(ff)):
        if(x%2!=0):
            f2.write(ff[x])
```

**OUTPUT**

This is my second line

**PROGRAM NO:** 3

**DATE:30/1/2022**

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

```
import csv
with open('departments.csv', newline='') as csvfile:
  data = csv.reader(csvfile, delimiter=' ', quotechar='|')
  for r in data:
    print(', '.join(r))
```

**department.csv**

```
department_id,department_name,manager_id,location_id
10,Administration,200,1700
20,Marketing,201,1800
30,Purchasing,114,1700
```

**OUTPUT**

```
department_id,department_name,manager_id,location_id
10,Administration,200,1700
20,Marketing,201,1800
30,Purchasing,114,1700
```

**PROGRAM NO:** 4

**DATE:30/1/2022**

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

```
import csv
with open('departments.csv', newline='') as csvfile:
  data = csv.DictReader(csvfile)
  print("id Department")
  print("---------------------------------")
  for r in data:
     print(r['department_id']," ",r['department_name']
```

**department.csv**

```
department_id,department_name,manager_id,location_id
10,Administration,200,1700
20,Marketing,201,1800
30,Purchasing,114,1700
```

**OUTPUT**

```
id Department
---------------------------------
10     Administration
20     Marketing
30     Purchasing
```

**PROGRAM NO:** 5

**DATE:30/1/2022**

**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.

```python
import csv

field_names = ['No', 'Company', 'Model']

cars = [
{'No': 1, 'Company': 'Ferrari', 'Model': '488 GTB'},
{'No': 2, 'Company': 'Porsche', 'Model': '918 Spyder'},
{'No': 3, 'Company': 'Bugatti', 'Model': 'La Voiture Noire'},
]

with open('cars.csv', 'w') as csvfile:
    writer = csv.DictWriter(csvfile, fieldnames=field_names)
    writer.writeheader()
    writer.writerows(cars)

with open('cars.csv', newline='') as csvfile:
  data = csv.reader(csvfile, delimiter=' ', quotechar='|')
  for r in data:
    print(', '.join(r))
```

**cars.csv**

No,Company,Model

1,Ferrari,488 GTB

2,Porsche,918 Spyder

3,Bugatti,La Voiture Noire

**OUTPUT**

No,Company,Model

1,Ferrari,488, GTB

2,Porsche,918, Spyder

3,Bugatti,La, Voiture, Noire