

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-2028

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 **Rahul P R** 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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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.

PROGRAM

```
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
1692
enter the final year
1710
start year 1692
end year 1710
1692
1696
1704
1708
```


PROGRAM NO: 3

DATE:24/11/2021

AIM: List comprehensions:

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

PROGRAM

```
list1=[2,3,-4,-5,-7,8]
list2=[]
for i in list1:
    if i>0:
        list2.append(i)
print("Resultant list",list2)
```

OUTPUT

Resultant list [2, 3, 8]

- **Square of N number**

PROGRAM

```
n=int(input("Enter the limit:"))
list1=[]
sq=1
for i in range(1,n+1):
    sq=i*i
    list1.append(sq)
print("Result:",list1)
```

OUTPUT

Enter the limit:4
Result: [1, 4, 9, 16]

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

PROGRAM

```
list1=[]
w1=input("Enter the word:")
for i in w1:
    if i in 'aeiouAEIOU':
        list1.append(i)
print("Resultant list:",list1)
```

OUTPUT

Enter the word:hello world
Resultant list: ['e', 'o', 'o']

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

PROGRAM

```
w1=input("Enter the word:")
for i in w1:
    print(i, " ")
    print(ord(i),"\n")
```

OUTPUT

Enter the word:hai

h
104

a
97

i
105

PROGRAM NO: 4

DATE:24/11/2021

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

PROGRAM

```
str1=input("Enter the text:")
list1=str1.split(" ")
print(list1)
for i in list1:
    count=list1.count(i)
    print(" ",i," ",count)
```

OUTPUT

```
Enter the text:how is is
['how', 'is', 'is']
how    1
is     2
is     2
```

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

PROGRAM

```
list1=[]  
n1=int(input("Enter the limit:"))  
for i in range(n1):  
    n2=int(input("Enter the number:"))  
  
    if n2>100:  
        list1.append("over")  
    else:  
        list1.append(n2)  
print(list1)
```

OUTPUT

```
Enter the limit:3  
Enter the number:300  
Enter the number:3  
Enter the number:5  
['over', 3, 5]
```

PROGRAM NO: 6

DATE:24/11/2021

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

PROGRAM

```
list1=["a","b","c","a","a"]  
print("List:\n",list1)  
print("Occurence of a:",list1.count('a'))
```

OUTPUT

```
List:  
['a', 'b', 'c', 'a', 'a']  
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

PROGRAM

```
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:3
Enter the elements:5
Enter the elements:7
Enter the number of elements in list2:3
Enter the elements:6
Enter the elements:7
Enter the elements:3
list1
[3, 5, 7]
list2
[6, 7, 3]
Length of 2 list is same
Sum is not equal
common elements: {3, 7}
```

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]

PROGRAM

```
string1=input("Enter the string:")  
print("Old string:",string1)  
first=string1[0]  
print("New String:",first+string1[1:].replace(first,$'))
```

OUTPUT

```
Enter the string:hai hello  
Old string: hai hello  
New String: hai $ello
```


PROGRAM NO: 9**DATE:24/11/2021**

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

PROGRAM

```
string1=input("Enter a string:")  
print("Old string:",string1)  
first=string1[0]  
  
last=string1[-1]  
print("New string:",last+string1[1:-1]+first)
```

OUTPUT

```
Enter a string:hello world  
Old string: hello world  
New string: dello worlh
```

PROGRAM NO: 10

DATE:24/11/2021

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

PROGRAM

```
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

PROGRAM

```
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

PROGRAM

```
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.

PROGRAM

```
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 $n+nn+nnn$

PROGRAM

```
n=input("Enter the number:")  
print("Number is",n)  
print("Result=",int(n)+ int(n*2) +  int(n*3))
```

OUTPUT

```
Enter the number:4  
Number is 4  
Result= 492
```

PROGRAM NO: 15

DATE:29/11/2021

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

PROGRAM

```
list1=["black","green","red"]  
list2=["black","blue","red"]  
print("Difference:",set(list1) ^ set(list2))
```

OUTPUT

Difference: {'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.

PROGRAM

```
str1=input("Enter the first string:")
str2=input("Enter the second string:")
c1=str1[0]
c2=str2[0]
print("\nString 1:",str1)
print("string 2:",str2)
print("Resultant string:",c2+str1[1:]+" "+c1+str2[1:])
```

OUTPUT

Enter the first string:hello
Enter the second string:world

String 1: hello
string 2: world
Resultant string: wello horld

PROGRAM NO: 17

DATE:29/11/2021

AIM:Sort dictionary in ascending and descending order.

PROGRAM

```
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

PROGRAM

```
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.

PROGRAM

```
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.

PROGRAM

```
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:1 1

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

PROGRAM

```
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

PROGRAM

```
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

PROGRAM

```
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.

PROGRAM

```
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.

PROGRAM

```
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.**PROGRAM**

```
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'

PROGRAM

```
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

PROGRAM

```
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

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

PROGRAM

```
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):

PROGRAM

```
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.

PROGRAM

```
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

PROGRAM

```
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

PROGRAM

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

OUTPUT

24
3
3.0

Calendar module

PROGRAM

```
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

PROGRAM

```
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

PROGRAM

```
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

PROGRAM

```
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)

PROGRAM

- **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

PROGRAM

```
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.

PROGRAM

```
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:Alan
 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: Alan

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: Alan

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.

PROGRAM

```
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:

PROGRAM NO: 4

DATE:9/1/2022

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,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.

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

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.

PROGRAM

```
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

PROGRAM

```
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.

PROGRAM

```
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

PROGRAM

```
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.

PROGRAM

```
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