PROGRAMMING LAB

(20MCA131)

LAB RECORD

Submitted in partial fulfilment of the requirements for the award of the degree of Master of Computer Applications of A P J Abdul Kalam Technological University

Submitted by:

ANUMOL THOMAS (SJC22MCA-2011)

MASTER OF COMPUTER APPLICATIONS

ST.JOSEPH'S COLLEGE OF ENGINEERING AND TECHNOLOGY, PALAI

CHOONDACHERRY P.O, KOTTAYAM

KERALA

February 2023

ST. JOSEPH' S COLLEGE OF ENGINEERING AND TECHNOLOGY, PALAI

(An ISO 9001: 2015 Certified College)

CHOONDACHERRY P.O, KOTTAYAM KERALA

CERTIFICATE

This is to certify that the Programming Lab Record (20MCA131) submitted by Anumol Thomas student of First semester MCA at ST. JOSEPH'S COLLEGE OF ENGINEERING AND TECHNOLOGY, PALAI in partial fulfilment for the award of Master of Computer Applications is a bonafide record of the lab work carried out by him under our guidance and supervision. This record in any form has not been submitted to any other University or Institute for any purpose.

Asst.Prof. Alex Jose **Asst.Prof. Anish Augustine K**

Faculty In– Charge **(HoD In Charge–MCA)**

Submitted for the End Semester Examination held on _____

Examiner 1:

Examiner 2:

DECLARATION

I Anumol Thomas, do hereby declare that the Programming Lab Record (20 MCA 135) is a record of work carried out under the guidance of Mr.Alex Jose, Asst.Professor ,Department of Computer Applications, SJCET, Palai as per the requirement of the curriculum of Master of Computer Applications Programme of A P J Abdul Kalam Technological University, Thiruvananthapuram. Further, I also declare that this record has not been submitted, full or part thereof, in any University / Institution for the award of any Degree / Diploma.

Place: Choondacherry ANUMOL THOMAS

Date : (SJC22MCA-2011)

CONTENT

Program :1

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

Source Code:

```
c= int(input("enter the current year"))
f= int(input("enter the final year"))
print("leap years are :")
for i in range (c,f) :
  if(i%4==0) and (i%100!=0) or (i%400==0) :
    print(i)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/1.py
enter the current year2022
enter the final year2030
leap years are :
2024
2028
```

Program :2

Aim: List comprehensions:

(a) Generate positive list of numbers from a given list of integers

(b) Square of N numbers

(c) Form a list of vowels selected from a given word

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

Source Code:

```
(a) list1 = [1, -2, 3, -4, 5, 6, -7, 8, -9, 10]
print("list1 : ", list1)
print("Positive numbers : ")
for num in list1:
 if num >= 0:
   print(num)
(b) list2 = [1, 2, 3, 4, 5, 34, 6, 78, 4, 8]
print("list1 : ", list2)
print("square of list1 : ")
for n in list2:
  print(n**2)
(c) V=['a','e','i','o','u']
word=input("enter the word")
s=[i for i in word if i in V]
print(s)
 (d) word=input("enter the word")
j=[ord(x) for x in word]
print(j)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/2.py
list1 :  [1, -2, 3, -4, 5, 6, -7, 8, -9, 10]
Positive numbers :
1
3
5
6
8
10
list1 :  [1, 2, 3, 4, 5, 34, 6, 78, 4, 8]
square of list1 :
1
4
9
16
25
1156
36
6084
16
64
enter the wordhello
['e', 'o']
enter the wordwelcome
[119, 101, 108, 99, 111, 109, 101]
```

Program :3

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

Source Code:

```
a = input("Enter a sentence : ")

b = input("Enter a word : ")

print("occurrences of the word", a.count(b))
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/3.py
Enter a sentence : welcome to python
Enter a word : welcome
occurrences of the word 1

Process finished with exit code 0
```

Program :4

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

Source Code:

```
n= int(input("enter the numbers of values"))
a=[]
for i in range(0,n):
 c=int(input("enter the value"))
 if c >100:
    a.append("over")
 else:
    a.append(c)
print(a)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/4.py
enter the numbers of values4
enter the value34
enter the value55
enter the value123
enter the value300
[34, 55, 'over', 'over']

Process finished with exit code 0
```

Program :5

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

Source Code:

```
list = str(['a', 'appu', 'ramu'])

print("list : ", list)

count = list.count("a")

print("Occurance of 'a' = ", count)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/5.py
list :  ['a', 'appu', 'ramu']
Occurance of 'a' =  3

Process finished with exit code 0
```

Program :6

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

Source Code:

```
list1 = [1, 2, 45, 78, 98]
list2 = [3, 6, 87, 9, 12, 5]
print(list1, "list1 : ")
print(list2, "list2 : ")
print("length of list1 = ", len(list1))
print("length of list2 = ", len(list2))
if len(list1) == len(list2):
 print("length of list are same")
else:
 print("not same length")
print("sum of list1 = ", sum(list1))
print("sum of list2 = ", sum(list2))
if sum(list1) == sum(list2):
 print("sum of two lists are same")
else:
 print("sun of list not same")
check = any(item in list1 for item in list2)
print("any value occur in both : ", check)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/6.py
[1, 2, 45, 78, 98] list1 :
[3, 6, 87, 9, 12, 5] list2 :
length of list1 =  5
length of list2 =  6
not same length
sum of list1 =  224
sum of list2 =  122
sun of list not same
any value occur in both :  False
```

Program :7

Aim: Get a string from an input string where all occurrences of first character replaced with '$', except first character.

[eg: onion -> oni$n]

Source Code:

```
x1 = str(input("Enter a string : "))

firstchar = x1[0]

x1 = x1.replace(firstchar, '$')

x1 = firstchar+x1[1:]

print(x1)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/7.py
Enter a string : onion
oni$n

Process finished with exit code 0
```

Program :8

Aim: Create a string from given string where first and last characters exchanged.

[eg: python -> nythop]

Source Code:

```
tr1 = input("Enter a string :")
exch_string = str1[-1]+str1[1:-1]+str1[0]
print(exch_string)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/8.py
Enter a string :python
nythop
```

Program :9

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

Source Code:

```
from math import pi

r=int(input("enter the radius:"))

print("area of circle=",pi*r*r)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/9.py
enter the radius:5
area of circle= 78.53981633974483

Process finished with exit code 0
```

Program :10

Aim: Find biggest of 3 numbers entered.

Source Code:

```
a= int(input("enter the fist number"))
b= int(input("enter the second number"))
c= int(input("enter the third number"))
if (a>=b) and (b>=c):
   print(a,"is greater")
elif (b>=a ) and (b>=c) :
   print(b,"is greater")
else :
  print(c,"is greater")
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/10.py
enter the fist number10
enter the second number5
enter the third number25
25 is greater

Process finished with exit code 0
```

Program :11

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

Source Code:

```
file=input("INPUT FILENAME:")
fext=file.split(".")
print(fext)
print(fext[-1])
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/11.py
INPUT FILENAME:program.py
['program', 'py']
py

Process finished with exit code 0
```

Program :12

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

Source Code:

```
color=input("ENTER COLORS SEPERATED BY COMAS:")

co_list=color.split(',')

print(co_list)

print("FIRST COLOR:",co_list[0])

print("LAST COLOR:",co_list[-1])
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/12.py
ENTER COLORS SEPERATED BY COMAS:red,blue,green,yellow
['red', 'blue', 'green', 'yellow']
FIRST COLOR: red
LAST COLOR: yellow

Process finished with exit code 0
```

Program :13

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

Source Code:

```
n = int(input("enter the number"))

print(n+n*n+n*n*n)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/13.py
enter the number5
155

Process finished with exit code 0
```

Program :14

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

Source Code:

```
color_list1 = set(["Black", "Green", "Blue", "White"])

color_list2 = set(["Red", "Orange", "Black", "White"])

print("color-list1 not contained in color-list2 are : ")

print(color_list1.difference(color_list2))
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/14.py
color-list1 not contained in color-list2 are :
{'Blue', 'Green'}

Process finished with exit code 0
```

Program :15

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

Source Code:

```
a=str(input("enter the str1"))

b=str(input("enter the str2"))

print(a.replace(a[0],b[0])+' '+b.replace(b[0],a[0]))
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/15.py
enter the str1welcome
enter the str2hello
helcome wello

Process finished with exit code 0
```

Program :16

Aim: Sort dictionary in ascending and descending order.

Source Code:

```
fruits = {'Apple': 2, 'Orange': 14, 'Pinapple': 31, 'Watermelon': 61, 'Grapes': 10}

l=list(fruits.items())

l.sort()

print('Ascending order is : ', l)

l=list(fruits.items())

l.sort(reverse=True)

print('Descending order is : ', l)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/16.py
Ascending order is :  [('Apple', 2), ('Grapes', 10), ('Orange', 14), ('Pinapple', 31), ('Watermelon', 61)]
Descending order is :  [('Watermelon', 61), ('Pinapple', 31), ('Orange', 14), ('Grapes', 10), ('Apple', 2)]

Process finished with exit code 0
```

Program :17

Aim: Merge two dictionaries.

Source Code:

```
dict1={1 :"apple",2:"orange",3 : "banana"}

dict2={4 :"plum",5 :"cherry"}

dict1.update(dict2)

print(dict1)
```

Output :

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/17.py
{1: 'apple', 2: 'orange', 3: 'banana', 4: 'plum', 5: 'cherry'}

Process finished with exit code 0
```

Program :18

Aim: Find gcd of 2 numbers.

Source Code:

```
import math

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

b = int(input("Enter number b : "))

print("GCD of", a, "and", b, "is", math.gcd(a, b))
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/18.py
Enter number a : 10
Enter number b : 20
GCD of 10 and 20 is 10

Process finished with exit code 0
```

Program :19

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

Source Code:

```
list1=[1,2,3,4,5,6,7,8,9,10]
for i in list1:
 if i % 2==0 :
   list1.remove(i)
print(list1)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/19.py
[1, 3, 5, 7, 9]

Process finished with exit code 0
```

Program :20

Aim: Program to find the factorial of a number

Source Code:

```
n=int(input("Enter the number"))
fact=1
for i in range(1,n+1):
 fact=fact*i
print(n,"! =",fact)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/20.py
Enter the number5
5 ! = 120

Process finished with exit code 0
```

Program :21

Aim: Generate Fibonacci series of N terms

Source Code:

```
n=int(input("Enter the number"))
fib=0
print("Fibonacci SERIES:")
for i in range(0,n+1):
 fib=fib+i
 print(fib)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/21.py
Enter the number5
Fibonacci SERIES:
0
1
3
6
10
15

Process finished with exit code 0
```

Program :22

Aim: Find the sum of all items in a list

Source Code:

```
a=[32,322,234,46,7,6]

print(sum(a))
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/22.py
647

Process finished with exit code 0
```

Program :23

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

Source Code:

```
lower = int(input("Enter lower limit:"))

upper = int(input("Enter upper limit:"))

list = [i for i in range(lower, upper+1)if i**.5 == int(i**.5)]

print(list)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/23.py
Enter lower limit:5
Enter upper limit:25
[9, 16, 25]

Process finished with exit code 0
```

Program :24

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

Eg: N=4

1

2 4

3 6 9

4 8 12 16

Source Code:

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

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/24.py
1
2 4
3 6 9
4 8 12 16

Process finished with exit code 0
```

Program :25

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

Source Code:

```
list="Web programming using php"
newlist=[i for i in list.casefold()]
dict={}.fromkeys(newlist,0)
for i in list.casefold():
 if i in dict:
    dict[i]=dict[i]+1
print(list)
print(dict)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/25.py
Web programming using php
{'w': 1, 'e': 1, 'b': 1, ' ': 3, 'p': 3, 'r': 2, 'o': 1, 'g': 3, 'a': 1, 'm': 2, 'i': 2, 'n': 2, 'u': 1, 's': 1, 'h': 1}

Process finished with exit code 0
```

Program :26

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

Source Code:

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

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/26.py
Enter a stringstring
stringly

Process finished with exit code 0
```

Program :27

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

Source Code:

```
list=["Hello","World","programming","python","data structure"]
print(list)
a=0
for i in list:
 a=len(i)if len(i)>a else a
print(a)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/27.py
['Hello', 'World', 'programming', 'python', 'data structure']
14

Process finished with exit code 0
```

Program :28

Aim: Construct following pattern using nested loop

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

Source Code:

```
n=5;
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:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/28.py

*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*

Process finished with exit code 0
```

Program :29

Aim: Generate all factors of a number.

Source Code:

```
num = int(input("Enter the number:"))
list = [i for i in range(1, num+1)if num % i == 0]
print("factors of number=", list)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/29.py
Enter the number:5
factors of number= [1, 5]

Process finished with exit code 0
```

Program :30

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

Source Code:

```
print("Area of rectangle")
l=int(input("length"))
b=int(input("breadth"))
c=lambda x,y: x*y
print("Area of rectangle:"+str(c(l,b)))
print("Area of square")
s=int(input("side of square"))
c=lambda x: x*x
print("Area of Square:"+str(c(s)))
print("Area of triangle")
l=int(input("base"))
b=int(input("height"))
c=lambda x,y: .5*x*y
print("Area of Square:"+str(c(l,b)))
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/30.py
Area of rectangle
length4
breadth3
Area of rectangle:12
Area of square
side of square4
Area of Square:16
Area of triangle
base2
height4
Area of Square:4.0

Process finished with exit code 0
```

Program :31

Aim: Work with built-in packages

Source Code:

```
import statistics

print("The value of pi is", math.pi)

seconds = time.time()

print("Seconds since epoch (the point where time begins). =", seconds)

li = [1, 2, 3, 3, 2, 2, 2]

print("The average of list values is : ", end="")

print(statistics.mean(li))

local_time = time.ctime(seconds)

print("Local time:", local_time)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/built.py
The value of pi is 3.141592653589793
Seconds since epoch (the point where time begins). = 1674193860.403376
The average of list values is : 2.142857142857143
Local time: Fri Jan 20 11:21:00 2023

Process finished with exit code 0
```

Program :32

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 importingstatements. (Include selective import of modules and import * statements)

Source Code:

graphpack.py

```
from graphics.dgraphics import cuboid,sphere

r=int(input("Enter the radius of circle:"))

circle.areac(r)

circle.peric(r)

l=int(input("Enter the length of rectangle:"))

b=int(input("Enter the breadth of rectangle:"))

rectangle.arear(l,b)

rectangle.perir(l,b)

l1=int(input("Enter the length of cuboid:"))

b1=int(input("Enter the breadth of cuboid:"))

h1=int(input("Enter the height of cuboid:"))

cuboid.areacub(l1,b1,h1)

cuboid.pericub(l1,b1,h1)

r1=int(input("Enter the radius of sphere:"))

sphere.areas(r1)

sphere.peris(r1)
```

graphics

circle.py

```
def arear(l,b):
```

```
 a=l*b
 print("Area of Rectangle is:",a)
def perir(l,b):
 p=2*(l+b)
 print("Area of Rectangle is:",p)
```

rectangle.py

```
def arear(l,b):
 a=l*b
 print("Area of Rectangle is:",a)
def perir(l,b):
 p=2*(l+b)
 print("Area of Rectangle is:",p)
```

cuboid.py

```
def areacub(l,b,h):
  a = 2*((l*b) + (b*h) + (h*
  print("Area of Cuboid is:", a)
def pericub(l,b,h):
 p = 4*(l+b+h)
 print("Perimeter of Cuboid is:", p)
```

Sphere.py

```
def areas(r):
 a = 4*3.14*r*r
 print("Area of Sphere is:", a)
def peris(r):
```

```
p = 6.2832*r

print("Perimeter of Sphere is:", p)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/graphpack.py
Enter the radius of circle:4
Area of Circle is: 50.24
Perimeter of Circle is: 25.12
Enter the length of rectangle:3
Enter the breadth of rectangle:4
Area of Rectangle is: 12
Area of Rectangle is: 14
Enter the length of cuboid:4
Enter the breadth of cuboid:3
Enter the height of cuboid:5
Area of Cuboid is: 94
Perimeter of Cuboid is: 48
Enter the radius of sphere:6
Area of Sphere is: 452.15999999999997
Perimeter of Sphere is: 37.6992

Process finished with exit code 0
```

Program :33

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

Source Code:

```
class rect:
  def __init__(self,l,b):
   self.a1=l
   self.a2=b
  def area(self):
   self.m=self.a1*self.a2
  def peri(self):
   self.n=2*(self.a1 + self.a2)
  def disp(self):
   print("Area of rectangle:", self.m)
   print("Perimeter of rectangle:", self.n)
  def compare(self,obj2):
    if self.m == obj2.m:
     print("Areas are equal")
    elif self.m > obj2.m:
     print("Area1 is greater than Area2")
    else:
     print("Area2 is greater than Area1")
l1=int(input("Enter length1:"))
b1=int(input("Enter breadth1:"))
l2=int(input("Enter length2:"))
b2=int(input("Enter breadth2:"))
```

obj1=rect(l1,b1)

obj2=rect(l2,b2)

obj1.area()

obj1.peri()

obj2.area()

obj2.peri()

obj1.disp()

obj2.disp()

obj1.compare(obj2)

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/32.py
Enter length1:3
Enter breadth1:4
Enter length2:4
Enter breadth2:5
Area of rectangle: 12
Perimeter of rectangle: 14
Area of rectangle: 20
Perimeter of rectangle: 18
Area2 is greater than Area1

Process finished with exit code 0
```

Program :34

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.

Source Code:

```
class bank:
  def __init__(self,a,n,t,b):
    self.ac = a
    self.name = n
    self.type = t
    self.bal = b
  def depo(self,a1):
    self.bal += a1
    print("Balance:",self.bal)
  def widthdraw(self,a2):
     if self.bal<a2:
        print("Invalid")
     else:
        self.bal -= a2
        print("Balance:",self.bal)
     def disp(self):
        print("Acc No:",self.ac)
        print("Name:", self.name)
        print("Acc Type:", self.type)
        print("Acc Balance:", self.bal)
a = int(input("Enter acc no:"))
n = input("Enter name:")
```

```
t = input("Enter acc type:")

b = int(input("Enter balance:"))

obj1 = bank(a, n, t, b)

obj1.disp()

a1 = int(input("Enter the amount to deposite:"))

obj1.depo(a1)

a2 = int(input("Enter the amount to widthdraw:"))

obj1.widthdraw(a2)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/33.py
Enter acc no:123456789
Enter name:kishor
Enter acc type:savings
Enter balance:2500
Acc No: 123456789
Name: kishor
Acc Type: savings
Acc Balance: 2500
Enter the amount to deposit:200
Balance: 2700
Enter the amount to widthdraw:700
Balance: 2000

Process finished with exit code 0
```

Program :35

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

Source Code:

```
class Rectangle:
  def __init__(self, l, b):
      self._l1 = l
      self._b1 = b
  def area(self):
      area1 = self._l1 * self._b1
      return area1
  def __lt__(self, obj):
      if (self.area() < obj.area()):
          return "The area of Rectangle1 is less than Rectangle2"
      else:
          return "The area of Rectangle2 is less than Rectangle1"
print("RECTANGLE 1")
l = int(input("Enter the length of rectangle1:"))
b = int(input("Enter the breadth of rectangle1:"))
obj1 = Rectangle(l,b)
print("The area is:")
print(obj1.area())
print("RECTANGLE 2")
l=int(input("Enter the length of rectangle2:"))
b=int(input("Enter the breadth of rectangle3:"))
obj2 = Rectangle(l,b)
```

```
print("The area is:")

print(obj2.area())

print("Now Comparing The Rectangles")

print(obj1 < obj2)
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/34.py
RECTANGLE 1
Enter the length of rectangle1:3
Enter the breadth of rectangle1:4
The area is:
12
RECTANGLE 2
Enter the length of rectangle2:4
Enter the breadth of rectangle3:4
The area is:
16
Now Comparing The Rectangles
The area of Rectangle1 is less than Rectangle2

Process finished with exit code 0
```

Program :36

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

Source Code:

```
class Time:
    def __init__(self, h, m, s):
        self._h1 = h
        self._m1 = m
        self._s1 = s
    def __add__(self, x):
        sum1 = self._h1 + x._h1
        sum2 = self._m1 + x._m1
        sum3 = self._s1 + x._s1
        if sum3 >= 60:
            sum3 = sum3 - 60
            sum2 =sum2 + 1
        if sum2 >= 60:
           sum2 = sum2 - 60
           sum1 = sum1 + 1
        print(sum1, ":", sum2,":", sum3);
print("TIME 1")
h1 = int(input("Enter the hour in time1:"))
m1 = int(input("Enter the minute in time1:"))
s1 = int(input("Enter the second in time1:"))
obj1 = Time(h1, m1, s1)
print("TIME 2")
```

```
h2 = int(input("Enter the hour in time2:"))

m2 = int(input("Enter the minute in time2:"))

s2 = int(input("Enter the second in time2:"))

obj2 = Time(h2, m2, s2)

print("The sum of both time are:")

obj1 + obj2
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/35.py
TIME 1
Enter the hour in time1:2
Enter the minute in time1:15
Enter the second in time1:2
TIME 2
Enter the hour in time2:3
Enter the minute in time2:15
Enter the second in time2:22
The sum of both time are:
5 : 30 : 24

Process finished with exit code 0
```

Program :37

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.

Source Code:

```
class Publisher:
  def __init__(self,name1):
    self.name=name1
  def show(self):
    pass
class Book(Publisher):
  def __init__(self,title1,author1,name1):
    self.title=title1
    self.author=author1
    Publisher.__init__(self,name1)
  def show(self):
    pass
class Python(Book):
  def __init__(self,p,no,title1,author1,name1):
    self.price=p
    self.no_of_pages=no
    Book.__init__(self,title1,author1,name1)
  def show(self):
      print('Book title:',self.title)
      print('Author:',self.author)
      print('Publisher:',self.name)
```

```
        print('Price: Rs.',self.price)
        print('No of pages:',self.no_of_pages)
P1=Python(700,300,'Programming with Python','GV Rossum','ABC Books')
P1.show()
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/36.py
Book title: Programming with Python
Author: GV Rossum
Publisher: ABC Books
Price: Rs. 700
No of pages: 300

Process finished with exit code 0
```

Program :38

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

Source Code:

```
def fread(fname):
  with open(fname) as f:
     c = f.readlines()
  print(c)
fread("demo.txt")
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/37.py
['Python\n', 'Interpreted high-level language.\n', 'Python is object oriented programming language\n']

Process finished with exit code 0
```

Program :39

Aim: Python program to copy odd lines of one file to other

Source Code:

```
a = open("demo.txt", "r")
b = open("t", "w")
c = a.readlines()
d = len(c)
for i in range(0, d):
  if i % 2 == 0:
    b.write(c[i])
  else:
    pass
b.close()
b = open("t", "r")
e = b.read()
print(e)
a.close()
b.close()
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/38.py
Python
Python is object oriented programming language


Process finished with exit code 0
```

Program :40

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

Source Code:

```
import csv

with open("csv3.csv", newline='') as csvfile:
    d = csv.reader(csvfile, delimiter=' ', quotechar='|')
    for i in d:
        print(', '.join(i))
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/39.py
ROLLNO,STUDENTNAME,MOOC, COURSE, 1,Date, of, Joining,No:of, Weeks
27,Georgekutty, Biju,Introduction, to, internet, of, things, ,,12, weeks
28,Gokul, Biju,"DBMS,The, Joy, of, Computing, using, Python",,"8, weeks,12, weeks"
29,Gokul, Sali, Rajan,Introduction, to, internet, of, things,,12, weeeks

Process finished with exit code 0
```

Program :41

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

Source Code:

```
import csv

with open("csv3.csv", newline='') as csvfile:
  d = csv.DictReader(csvfile)
  print("ROLL NO STUDENT NAME")
  print("--------------------")
  for i in d:
    print(i['ROLLNO'], i['STUDENTNAME'])
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/40.py
ROLL NO STUDENT NAME
--------------------
27 Georgekutty Biju
28 Gokul Biju
29 Gokul Sali Rajan

Process finished with exit code 0
```

Program :42

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.

Source Code:

```
import csv

field_name = ['No', 'Company', 'Car Model']

car = [{'No': 1,'Company':'Ferrari','Car Model':'GH'},

      {'No': 2,'Company':'BMW','Car Model':'X5'},

      {'No': 3,'Company':'Maruti Suzuki','Car Model': 'Swift'},

      {'No': 4,'Company':'Audi', 'Car Model':'RS7'},

      {'No': 5,'Company':'Toyota', 'Car Model':'Fortuner'}]

with open('b.csv', 'w') as csvfile:

   write = csv.DictWriter(csvfile, fieldnames=field_name)

   write.writeheader()

   write.writerows(car)

with open('b.csv', newline='') as csvfile:

  d = csv.reader(csvfile, delimiter='|')

  for r in d:

   print(','.join(r))
```

Output:

```
/home/sjcet/.virtualenvs/pythonProject/bin/python /home/sjcet/PycharmProjects/python/41.py
No,Company,Car Model
1,Ferrari,GH
2,BMW,X5
3,Maruti Suzuki,Swift
4,Audi,RS7
5,Toyota,Fortuner

Process finished with exit code 0
```