Program 1.a)

Aim: Python program to find factorial of a given number using recursion?

Source Code:

```
# -*- coding: utf-8 -*-
"""Created on Sat Jul 30 18:43:33 2022@author: BHARGAV"""
def fact(n):
    if(n==1):
        return 1
    else:
        return n*fact(n-1)
while True:
    n=int(input("Enter n value"))
    print("Factorial of ",n,"is",fact(n))
    ch=input("Do you want another Y/N")
    if(ch=='y' or ch=='Y'):
        continue
    else:
        break
```

Output:

```
In [1]: runfile('D:/Y20AIT453/1.a)factorial.py', wdir='D:/Y20AIT453')

Enter n value16
Factorial of  16 is 20922789888000

Do you want another Y/Ny

Enter n value5
Factorial of  5 is 120

Do you want another Y/Nn

In [2]:
```

Program 1.b)

Aim: Python program to print finbonacci series upto n terms using recursion?

Source Code:

```
# -*- coding: utf-8 -*-
"""Created on Sat Jul 30 21:30:51 2022@author: BHARGAV"""
def fib(n):
    if(n<=1):
        return 1;
    else:
        return fib(n-1)+fib(n-2)
while True:
    n=int(input("Enter no of terms"))
    if(n==0):
        print("Please enter a +ve number greater than 0")
    else:
        for i in range(n):
            print(fib(i),end=" ")
    ch=input("Do you want another Y/N")
    if(ch=='y' or ch=='Y'):
        continue
    else:
        break
```

Output:

```
In [2]: runfile('D:/Y20AIT453/1.b)fibanoci.py', wdir='D:/Y20AIT453')

Enter no of terms10
1 1 2 3 5 8 13 21 34 55
Do you want another Y/Ny

Enter no of terms17
1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597
Do you want another Y/Nn

In [3]:
```

Program 1.c)

Aim: Python program to print sum of digits of given numbers using recursion?

Source Code:

```
# -*- coding: utf-8 -*-
"""Created on Sat Jul 30 21:40:32 2022@author: BHARGAV"""
while True:
    def sumofdigits(n):
        if(n<=9):
            return n
        else:
            rem=n%10
            return rem+sumofdigits(n//10)
    n=int(input("enter n value"))
    print("sum of digits of a ",n,"is",sumofdigits(n))
    ch=input("Do you want another Y/N")
    if(ch=='y' or ch=='Y'):
        continue
    else:
        break
```

Output:

```
In [4]: runfile('D:/Y20AIT453/1.c)sum-of-terms.py', wdir='D:/Y20AIT453')

enter n value5343
sum of digits of a  5343 is 15

Do you want another Y/Ny

enter n value7645
sum of digits of a  7645 is 22

Do you want another Y/Nn

In [5]:
```

Aim: Create a file name bec.txt?

code:

```
# -*- coding: utf-8 -*-
"""Created on Sat Jul 30 21:46:43 2022@author: BHARGAV"""”
a=open("bec.txt","w")
a.write("Today is monday \n")
a.write("It is raining today \n")
a.write("All mondays are working days \n")
a.write("Therefore today is working day \n")
print("\nText inserted into bec.txt successfully")
a.close
```

Output:

```
In [11]: runfile('D:/Y20AIT453/creating-bec.txt-for-2a.py', wdir='D:/Y20AIT453')

Text inserted into bec.txt successfully
```

Program 2.a)

Aim: Python program it should read each character of a text file named bec.txt should display the words starts with t and a (or) T and A?

Source Code:

```
# -*- coding: utf-8 -*-
"""Created on Sat Jul 30 21:52:59 2022@author: BHARGAV"""
a=open("bec.txt","r")
s=a.read()
words=s.split()
for i in words:
    if(i[0]=='t' or i[0]=='a' or i[0]=='T' or i[0]=='A'):
        print(i)
a.close()
```

Output:

```
In [5]: runfile('D:/Y20AIT453/2a).py', wdir='D:/Y20AIT453')
Today
today
All
are
Therefore
today

In [6]:
```

Program 2.b)

Aim: write a function even in python which should read the file named bec.txt and display even length words in a given file?

Source Code:

```
# -*- coding: utf-8 -*-
"""Created on Sat Jul 30 21:56:21 2022@author: BHARGAV"""
def even():
    a=open("bec.txt","r")
    s=a.read()
    words=s.split()
    for i in words:
        if(len(i)%2==0):
            print(i,len(i))
    a.close()
even()
```

Output:

```
In [6]: runfile('D:/Y20AIT453/2b).py', wdir='D:/Y20AIT453')
is 2
monday 6
It 2
is 2
days 4
is 2
```

Program 2.c)

Aim: Python program to read a binary file named “book.dat” has structure

[bookname , book no., author, price]

i) Write a user defined function createfile() to input data for a record and add to “book.dat”

ii) Write a user defined function countRec(author) which accepts author name as parameter and count the no.of books by the given author are stored in binary file “book.dat” and return result.

Source Code:

```
# -*- coding: utf-8 -*-
"""Created on Sat Jul 30 22:20:14 2022@author: BHARGAV"""
import pickle
def createFile():
    file=open("book.dat","ab")
    BookNo=int(input("Enter book number:"))
    Book_Name=input("Enter book Name:")
    Author=input("Enter author:")
    price=int(input("Enter price:"))
    record=[BookNo,Book_Name,Author,price]
    pickle.dump(record,file)
    file.close()
def CountRec(Author):
    file=open("book.dat","rb")
    count=0
    try:
        while True:
            record=pickle.load(file)
            if record[2]==Author:
                count+=1
    except EOFError:
        pass
    return count
    file.close()
def testprogram():
```

```
    while True:
        createFile()
        choice=input("Add more record(Y/N)?")
        if choice=='N' or choice=='n':
            break
    Author=input('Enter author name to search:')
    n=CountRec(Author)
    print("No.of books are",n)
testprogram()
```

Output:

```
In [10]: runfile('D:/Y20AIT453/2c).py', wdir='D:/Y20AIT453')

1.create file
2.countrec
3.display
4.exit

enter choice1

Enter book number:123

Enter book Name:Python

Enter author:Bhargav

Enter price:1000
123
Python
Bhargav
1000

1.create file
2.countrec
3.display
4.exit
```

```
enter choice1

Enter book number:456

Enter book Name:java

Enter author:Bhargav

Enter price:2000
123
Python
Bhargav
1000

1.create file
2.countrec
3.display
4.exit

enter choice1
```

```
Enter book number:789

Enter book Name:C++

Enter author:Akash

Enter price:4000
123
Python
Bhargav
1000

1.create file
2.countrec
3.display
4.exit

enter choice2

Enter author name to search:Bhargav
No.of books are 2
```

```
1.create file
2.countrec
3.display
4.exit

enter choice3
123
Python
Bhargav
1000

1.create file
2.countrec
3.display
4.exit

enter choice4

In [11]:
```

Program 3.a)

Aim: python program to count the number of words ends with S (or) s and display the words in a given string?

Source Code:

```
# -*- coding: utf-8 -*-
"""Created on Sat Jul 30 22:25:32 2022@author: BHARGAV"""


import re
str="""To build centers  of excellence impart high quality education
    and install high standards of ethics and professionalism through strategic
    efforts of our dedicated staff."""
a=re.findall("[a-z,A-Z]+[s][ |,|.|:]",str)
print(a)
cnt=0
for i in a:
   cnt+=1
print("No.of words ends with s are:",cnt)
```

Output:

```
In [12]: runfile('D:/Y20AIT453/3a).py', wdir='D:/Y20AIT453')
['centers ', 'standards ', 'ethics ', 'efforts ']
No.of words ends with s are: 4
```

Program 3.b)

Aim: python program to find all integers and floating numbers in a given paragraph then print sum of those integers and floating point numbers?

Source Code:

```
# -*- coding: utf-8 -*-
"""Created on Sat Jul 30 22:28:21 2022@author: BHARGAV"""
import re
str="cinema ticket is 200 and GST is 24.5"
a=re.findall("[0-9]",str)
print(a)
sum=0
for i in a:
    sum=sum+int(i)
print("sum of digits is:",sum)
```

Output:

```
In [13]: runfile('D:/Y20AIT453/3b).py', wdir='D:/Y20AIT453')
['2', '0', '0', '2', '4', '5']
sum of digits is: 13
```

Program 3.c)

Aim: python program to replace character ‘a’ with ‘A’ in the given string?

Source Code:

```
# -*- coding: utf-8 -*-
"""Created on Sun Jul 31 10:09:47 2022@author: BHARGAV"""

import re
str="To build centers  of excellence impart high quality education."
a=re.sub('a','A',str,flags=re.IGNORECASE)
print(a)
```

Output:

```
In [14]: runfile('D:/Y20AIT453/3c).py', wdir='D:/Y20AIT453')
To build centers  of excellence impArt high quAlity educAtion.
```

Program 4.a)

Aim: Write a python program to demonstrate the bank management system with following modules using OOP concepts.

i. create account ii. deposit money

iii. withdraw money iv. check balance.

Source Code:

```
# -*- coding: utf-8 -*-

"""Created on Sun Jul 31 10:18:01 2022

@author: BHARGAV"""

class bank:

    def init(self):

        self.balance=0

        self.account=0

    def create(self):

        self.account=int(input("\nEnter account number:"))

        self.balance=int(input("\nEnter deposit amount:"))

    def deposit(self):

        ac=int(input("\nEnter a account number:"))

        d=int(input("\nEnter how much you want to deposit:"))

        for i in l:

            if i.account==ac:

                i.balance+=d

                print("\nyour update balance is Rs:",i.balance)

    def withdrawal(self):
```

```
        ac=int(input("\nEnter a account number:"))
        w=int(input("\nEnter how much you want to withdraw:"))
        for i in l:
            if i.account==ac:
                if w<=i.balance:
                    i.balance-=w
                    print("\nbalance:",i.balance)
                else:
                    print("\ninsufficent balance:")

    def display(self):
        print("\nAccount:",self.account,end=",")
        print("Balance:",self.balance,end="\n")
    def search(self):
        for j in l:
            if j.account==ac:
                print("\nbalance in account is:",j.balance)
l=[]
while True:
    Ob=bank()
    print("\n1.create \n2.deposit \n3.withdrawal\n4.display\n5.search")
    ch=int(input("\nEnter your choice:"))
    if ch==1:
        Ob.create()
```

```
        l.append(Ob)
    elif ch==2:
        Ob.deposit()
    elif ch==3:
        Ob.withdrawal()
    elif ch==4:
        for i in l:
            i.display()
    elif ch==5:
        ac=int(input("\nEnter for searching your account number:"))
        Ob.search()
    else:
        print("\n Invalid choice")
    c=input("\nDo you want to continue y/n")
    if c=='n' or c=='N':
        break
print(l)
```

Output:

```
In [15]: runfile('D:/Y20AIT453/4a.py', wdir='D:/Y20AIT453')

1.create
2.deposit
3.withdrawal
4.display
5.search


Enter your choice:1


Enter account number:123


Enter deposit amount:20000


Do you want to continue y/ny

1.create
2.deposit
3.withdrawal
4.display
5.search


Enter your choice:1


Enter account number:456


Enter deposit amount:50000


Do you want to continue y/ny

1.create
2.deposit
3.withdrawal
4.display
5.search


Enter your choice:1


Enter account number:789
```

```
Enter deposit amount:678965


Do you want to continue y/ny

1.create
2.deposit
3.withdrawal
4.display
5.search


Enter your choice:4

Account: 123,Balance: 20000

Account: 456,Balance: 50000

Account: 789,Balance: 678965


Do you want to continue y/ny
```

```
1.create
2.deposit
3.withdrawal
4.display
5.search


Enter your choice:2


Enter a account number:456


Enter how much you want to deposit:50000

your update balance is Rs: 100000


Do you want to continue y/ny

1.create
2.deposit
3.withdrawal
4.display
5.search
```

```
Do you want to continue y/ny

1.create
2.deposit
3.withdrawal
4.display
5.search


Enter your choice:3


Enter a account number:789


Enter how much you want to withdraw:10000000

insufficent balance:


Do you want to continue y/ny
```

```
1.create
2.deposit
3.withdrawal
4.display
5.search


Enter your choice:3


Enter a account number:789


Enter how much you want to withdraw:5000

balance: 673965


Do you want to continue y/ny

1.create
2.deposit
3.withdrawal
4.display
5.search
```

```
Enter your choice:4

Account: 123,Balance: 20000

Account: 456,Balance: 100000

Account: 789,Balance: 673965


Do you want to continue y/ny

1.create
2.deposit
3.withdrawal
4.display
5.search


Enter your choice:5


Enter for searching your account number:456

balance in account is: 100000
```

```
Do you want to continue y/nn
[<__main__.bank object at 0x000002116BE29820>, <__main__.bank object at 0x000002116BE29A30>, <__main__.bank object at
0x000002116BE298B0>]
```

Program 4.b)

Aim: Python program for implementation of library management system using class?

Source Code:

```
# -*- coding: utf-8 -*-

"""Created on Sun Jul 31 11:00:32 2022

@author: BHARGAV"""

class library:
    def __init__(self):
        self.title=""
        self.author=""
        self.publisher=""
    def read(self):
        self.title=input("enter book title:")
        self.author=input("enter book author:")
        self.publisher=input("enter book publisher:")
    def display(self):
        print("title:",self.title)
        print("author:",self.author)
        print("publisher:",self.publisher)
    def search(self):
        a=input("enter author name:")
        for i in my_book:
            if i.author==a:
                print("title:",i.title)
```

```
            print("publisher:",i.publisher)
    def delete(self):
        b=input("enter author name:")
        for i in my_book:
            if i.author==b:
                my_book.remove(i)
                print("record deleted sucessfully")
my_book=[]
ch='y'
while(ch=='y'):
    print("1.Add new book\n2.Display books \n3.search \n4.delete")
    choice=int(input("enter choice:"))
    if (choice==1):
        book=library()
        book.read()
        my_book.append(book)
    elif(choice==2):
        for i in my_book:
            i.display()
    elif(choice==3):
        ob=library()
        ob.search()
    elif(choice==4):
        ob=library()
```

```
        ob.delete()
    else:
        print("Invalid choice:")
    ch=input("do you want to continue...?")
    print("Bye!")
```

Output:

```
In [24]: runfile('D:/Y20AIT453/4b).py', wdir='D:/Y20AIT453')
1.Add new book
2.Display books
3.search
4.delete

enter choice:1

enter book title:Java

enter book author:Bhargav

enter book publisher:Akash

do you want to continue...?y
```

```
1.Add new book
2.Display books
3.search
4.delete

enter choice:1

enter book title:Python

enter book author:Bhargav

enter book publisher:Srihari

do you want to continue...?y
Bye!
1.Add new book
2.Display books
3.search
4.delete

enter choice:1

enter book title:C++

enter book author:Srihari
```

```
enter book publisher:Bhargav

do you want to continue...?y
1.Add new book
2.Display books
3.search
4.delete

enter choice:2
title: Java
author: Bhargav
publisher: Akash
title: Python
author: Bhargav
publisher: Srihari
title: C++
author: Srihari
publisher: Bhargav

do you want to continue...?y
1.Add new book
2.Display books
3.search
4.delete

enter choice:3

enter author name:Bhargav
title: Java
publisher: Akash
title: Python
publisher: Srihari

do you want to continue...?y
1.Add new book
2.Display books
3.search
4.delete

enter choice:4

enter author name:Srihari
record deleted sucessfully

do you want to continue...?y
1.Add new book
2.Display books
3.search
4.delete

enter choice:2
title: Java
author: Bhargav
publisher: Akash
title: Python
author: Bhargav
publisher: Srihari

do you want to continue...?n
Bye!
```

Program 5)

Aim:write a program to build a simple student management system using python ,which can perform the following operation.

1)accept

2)display

3)search

4)delete

5)update

Source Code:

```
# -*- coding: utf-8 -*-
"""Created on Sun Jul 31 11:09:44 2022@author: BHARGAV"""
class data:
    def _init_(self):
        self.reg=0
        self.name=" "
        self.s1=0
        self.s2=0
        self.s3=0
        self.s4=0
        self.percentage=0
    def create(self):
        self.reg=input("Enter registration number")
        self.name=input("Enter student name")
        self.s1=int(input("Enter 1st subject marks"))
        self.s2=int(input("Enter 2st subject marks"))
        self.s3=int(input("Enter 3st subject marks"))
        self.s4=int(input("Enter 4st subject marks"))
        self.percentage=((self.s1+self.s2+self.s3+self.s4)/400)*100
        print("Percentage: = ",self.percentage)
        print("{} updated successfully".format(self.reg))
    def display(self):
```

```
        print("Reg = ",self.reg)
        print("Name = ",self.name)
        print("s1 = ",self.s1)
        print("s2 = ",self.s2)
        print("s3 = ",self.s3)
        print("s4 = ",self.s4)
        self.percentage=((self.s1+self.s2+self.s3+self.s4)/400)*100
        print("percentage = {} %".format(self.percentage))
    def search(self,sreg):
        for j in l:
            if j.reg==sreg:
                print("Reg = ",j.reg)
                print("Name = ",j.name)
                print("s1 = ",j.s1)
                print("s2 = ",j.s2)
                print("s3 = ",j.s3)
                print("s4 = ",j.s4)
    def update(self,sreg):
        while True:
            print("\n1.update name\n2.update s1\n3.update s2\n4.update s3\n5.update s4")
            ch=int(input("Enter choice"))
            if ch==1:
                for j in l:
                    if j.reg==sreg:
                        uname=input("Enter new name")
                        j.name=uname
                        print("\n Name updated successfully")
            elif ch==2:
                for j in l:
                    if j.reg==sreg:
                        us1=int(input("Enter new s1"))
                        j.s1=us1
                        print("\n s1 marks updated successfully")
            elif ch==3:
```

```
            for j in l:
                if j.reg==sreg:
                    us2=int(input("Enter new s2"))
                    j.s2=us2
                    print("\n s2 marks updated successfully")
        elif ch==4:
            for j in l:
                if j.reg==sreg:
                    us3=int(input("Enter new s3"))
                    j.s3=us3
                    print("\n s3 marks updated successfully")
        elif ch==5:
            for j in l:
                if j.reg==sreg:
                    us4=int(input("Enter new s4"))
                    j.s4=us4
                    print("\n s4 marks updated successfully")
        else:
            print("invalid choice")
        ch=input("\nDo u want to udate once again y/n")
        if ch=='n' or ch=='N':
            break
    def delete(self,sreg):
        cnt=0
        for j in l:
            if j.reg==sreg:
                print("{} deleted successfully".format(j.reg))
                del l[cnt]
            cnt+=1
l=[]
while True:
    ob=data()
    print("\n1.create\n2.dispaly\n3.search\n4.update\n5.delete")
    ch=int(input("Enter choice"))
```

```
    if ch==1:
        ob.create()
        l.append(ob)
    elif ch==2:
        for i in l:
            i.display()
    elif ch==3:
        sreg=input("Search reg")
        ob.search(sreg)
    elif ch==4:
        sreg=input("Search reg")
        ob.update(sreg)
    elif ch==5:
        sreg=input("Search reg")
        ob.delete(sreg)
    else:
        print("Invaid choice")
    ch=input("\nDo u want y/n")
    if ch=='n' or ch=='N':
        break
print(l)
```

Output:

```
In [25]: runfile('D:/Y20AIT453/5)student-management_system.py', wdir='D:/Y20AIT453')

1.create
2.dispaly
3.search
4.update
5.delete

Enter choice: 1

Enter registration number: Y20AIT453

Enter student name: BHARGAV

Enter 1st subject marks: 98

Enter 2st subject marks: 87

Enter 3st subject marks: 67

Enter 4st subject marks: 54
Percentage: =  76.5
Y20AIT453 updated successfully
```

```
Do you want to continue y/n:Y

1.create
2.dispaly
3.search
4.update
5.delete

Enter choice: 1

Enter registration number: Y20AIT454

Enter student name: LIKITH

Enter 1st subject marks: 65

Enter 2st subject marks: 89

Enter 3st subject marks: 65

Enter 4st subject marks: 34
Percentage: =  63.24999999999999
Y20AIT454 updated successfully
```

```
Do you want to continue y/n:Y

1.create
2.dispaly
3.search
4.update
5.delete

Enter choice: 1

Enter registration number: Y20AIT455

Enter student name: ASHOK

Enter 1st subject marks: 87

Enter 2st subject marks: 98

Enter 3st subject marks: 45

Enter 4st subject marks: 34
Percentage: =  66.0
Y20AIT455 updated successfully
```

```
Do you want to continue y/n:Y

1.create
2.dispaly
3.search
4.update
5.delete

Enter choice: 2
Reg =  Y20AIT453
Name =  BHARGAV
s1 =  98
s2 =  87
s3 =  67
s4 =  54
percentage = 76.5 %
Reg =  Y20AIT454
Name =  LIKITH
s1 =  65
s2 =  89
s3 =  65
s4 =  34
percentage = 63.24999999999999 %
```

```
Reg =  Y20AIT455
Name =  ASHOK
s1 =  87
s2 =  98
s3 =  45
s4 =  34
percentage = 66.0 %


Do you want to continue y/n:Y

1.create
2.dispaly
3.search
4.update
5.delete

Enter choice: 3
```

```
Search reg: Y20AIT455
Reg =  Y20AIT455
Name =  ASHOK
s1 =  87
s2 =  98
s3 =  45
s4 =  34


Do you want to continue y/n:Y

1.create
2.dispaly
3.search
4.update
5.delete

Enter choice: 4

Search reg: Y20AIT454

1.update name
2.update s1
3.update s2
4.update s3
5.update s4
```

```
Enter choice2

Enter new s1: 100

 s1 marks updated successfully:


Do u want to udate once again y/n: Y

1.update name
2.update s1
3.update s2
4.update s3
5.update s4

Enter choice3

Enter new s2: 100

 s2 marks updated successfully:


Do u want to udate once again y/n: N
```

```
Do you want to continue y/n:Y

1.create
2.dispaly
3.search
4.update
5.delete

Enter choice: 2
Reg =  Y20AIT453
Name =  BHARGAV
s1 =  98
s2 =  87
s3 =  67
s4 =  54
percentage = 76.5 %
Reg =  Y20AIT454
Name =  LIKITH
s1 =  100
s2 =  100
s3 =  65
s4 =  34
percentage = 74.75 %
```

```
Reg =  Y20AIT455
Name =  ASHOK
s1 =  87
s2 =  98
s3 =  45
s4 =  34
percentage = 66.0 %


Do you want to continue y/n:Y

1.create
2.dispaly
3.search
4.update
5.delete

Enter choice: 5

Search reg: Y20AIT455
Y20AIT455 deleted successfully
```

```
Do you want to continue y/n:Y

1.create
2.dispaly
3.search
4.update
5.delete

Enter choice: 2
Reg =  Y20AIT453
Name =  BHARGAV
s1 =  98
s2 =  87
s3 =  67
s4 =  54
percentage = 76.5 %
Reg =  Y20AIT454
Name =  LIKITH
s1 =  100
s2 =  100
s3 =  65
s4 =  34
percentage = 74.75 %
```

```
Do you want to continue y/n:N
[<__main__.data object at 0x000002116BE60100>, <__main__.data object at 0x000002116BE60400>]
```

Program 6.a)

Aim: python program to implement stack using list?

Source Code:

```
# -*- coding: utf-8 -*-

"""Created on Sun Jul 31 11:47:07 2022@author: BHARGAV"""

class stack:

    def __init__(self,ele=0):

        self.ele=0

    def push(self):

        self.ele=int(input("enter the element"))

        list.append(self.ele)

    def popp(self):

        if len(list)==0:

            print("Stack is empty deletion not possible")

        else:

            print("deleted element is",list.pop())

    def display(self):

        if len(list)==0:

            print("Stack is empty no elements to display")

        else:

            for i in range(len(list),0,-1):

                print(list[i-1])


list=[]
```

```
ob=stack()
while True:
    print("\n1.push\n2.pop\n3.display\n4.exit")
    ch=int(input("enter your choice"))
    if ch==1:
        ob.push()
    elif ch==2:
        ob.popp()
    elif ch==3:
        ob.display()
    elif ch==4:
        break
```

Output:

```
In [26]: runfile('D:/Y20AIT453/6A)STACK.PY', wdir='D:/Y20AIT453')

1.push
2.pop
3.display
4.exit

enter your choice1

enter the element1

1.push
2.pop
3.display
4.exit

enter your choice1

enter the element2

1.push
2.pop
3.display
4.exit

enter your choice1

enter the element3
```

```
1.push
2.pop
3.display
4.exit

enter your choice3
3
2
1

1.push
2.pop
3.display
4.exit

enter your choice2
deleted element is 3

1.push
2.pop
3.display
4.exit

enter your choice2
deleted element is 2

1.push
2.pop
3.display
4.exit

enter your choice2
deleted element is 1

1.push
2.pop
3.display
4.exit

enter your choice2
Stack is empty deletion not possible

1.push
2.pop
3.display
4.exit

enter your choice3
Stack is empty no elements to display

1.push
2.pop
3.display
4.exit

enter your choice4
```

Program 6.b)

Aim: Python program to implement queue using list?

Source Code:

```
# -*- coding: utf-8 -*-

"""Created on Sun Jul 31 13:36:40 2022@author: BHARGAV"""

class queue:
    def __init__(self,ele=0):
        self.ele=0
    def enqueue(self):
        self.ele=int(input("enter the element"))
        list.append(self.ele)
    def dequeue(self):
        if len(list)==0:
            print("\nQueue is empty cannot remove an element")
        else:
            print("deleted element is",list.pop(0))
    def display(self):
        if len(list)==0:
            print("\nQueue is empty cannot display elements")
        else:
            for i in range(0,len(list)):
                print(list[i],end=" ")
list=[]
```

```
ob=queue()
while True:
    print("\n1.enqueue\n2.dequeue\n3.display\n4.exit")
    ch=int(input("enter your choice"))
    if ch==1:
        ob.enqueue()
    elif ch==2:
        ob.dequeue()
    elif ch==3:
        ob.display()
    elif ch==4:
        break
```

Output:

```
In [28]: runfile('D:/Y20AIT453/6b)queue.py', wdir='D:/Y20AIT453')

1.enqueue
2.dequeue
3.display
4.exit

enter your choice1

enter the element1

1.enqueue
2.dequeue
3.display
4.exit

enter your choice1

enter the element2

1.enqueue
2.dequeue
3.display
4.exit

enter your choice1

enter the element3
```

```
1.enqueue
2.dequeue
3.display
4.exit

enter your choice3
1 2 3
1.enqueue
2.dequeue
3.display
4.exit

enter your choice2
deleted element is 1

1.enqueue
2.dequeue
3.display
4.exit

enter your choice2
deleted element is 2

1.enqueue
2.dequeue
3.display
4.exit

enter your choice2
deleted element is 3

1.enqueue
2.dequeue
3.display
4.exit

enter your choice3

Queue is empty cannot display elements

1.enqueue
2.dequeue
3.display
4.exit

enter your choice2

Queue is empty cannot remove an element

1.enqueue
2.dequeue
3.display
4.exit

enter your choice4
```

Program 7.a)

Aim: python program to evaluate postfix expression using stack?

Source Code:

```
# -*- coding: utf-8 -*-
"""Created on Sun Jul 31 13:54:21 2022@author: BHARGAV"""
class evaluate_postfix:
    def __init__(self):
        self.items=[]
        self.size=-1
    def isEmpty(self):
        return self.items==[]
    def push(self,item):
        self.items.append(item)
        self.size+=1
    def pop(self):
        if self.isEmpty():
            return 0
        else:
            self.size-=1
            return self.items.pop()
    def seek(self):
        if self.isEmpty():
            return False
        else:
            return self.items[self.size]
    def evalute(self,expr):
        for i in expr:
            if i in '0123456789':
                self.push(i)
            else:
                op1=self.pop()
                op2=self.pop()
                result=self.cal(op2,op1,i)
```

```
            self.push(result)
        return self.pop()
    def cal(self,op2,op1,i):
        if i == '*':
            return int(op2)*int(op1)
        elif i == '/':
            return int(op2)/int(op1)
        elif i == '+':
            return int(op2)+int(op1)
        elif i == '-':
            return int(op2)-int(op1)
        elif i == '^':
            return int(op2)**int(op1)
s=evaluate_postfix()
expr=input('enter the postfix expression')
value=s.evalute(expr)
print('the result of postfix expression',expr,'is',value)
```

Output:

```
In [29]: runfile('D:/Y20AIT453/7)postfix-using-stack.py', wdir='D:/Y20AIT453')

enter the postfix expression62/3-42*+
the result of postfix expression 62/3-42*+ is 8

In [30]: runfile('D:/Y20AIT453/7)postfix-using-stack.py', wdir='D:/Y20AIT453')

enter the postfix expression42^3*3-84/11+/+
the result of postfix expression 42^3*3-84/11+/+ is 46
```

Program 7.b)

Aim: Python program to Implement Delimiter Using stack?

Source Code:

```
# -*- coding: utf-8 -*-

"""Created on Sun Jul 31 14:20:43 2022@author: BHARGAV"""

open_list = ["[","{","("]

close_list = ["]","}",")"]

def check(myStr):

    stack = []

    for i in myStr:

        if i in open_list:

            stack.append(i)

        elif i in close_list:

            pos = close_list.index(i)

            if ((len(stack) > 0) and

                (open_list[pos] == stack[len(stack)-1])):

                stack.pop()

            else:

                return "Unbalanced"

    if len(stack) == 0:

        return "Balanced"

    else:

        return "Unbalanced"

string=input("Enter parenthesis")
```

```
print(string,"-",check(string))
```

Output:

```
In [1]: runfile('D:/Y20AIT453/7b)delimiter.py', wdir='D:/Y20AIT453')

Enter parenthesis[{}{})(]
[{}{})(] - Unbalanced

In [2]: runfile('D:/Y20AIT453/7b)delimiter.py', wdir='D:/Y20AIT453')

Enter parenthesis{[()]}
{[()]} - Balanced
```

Program 8)

Aim: Write a python program to implement single linked list with following operations using class and object.

i.create ii.insert_at_begin iii.insert_at_end iv.delete_at_begin v.delete_at_end.

Source Code:

```
# -*- coding: utf-8 -*-

"""Created on Fri Aug 12 17:54:22 2022

@author: BHARGAV"""

class node:

    def __init__(self,node=None):

        self.data=node

        self.next=None

class linkedlist:

    def __init__(self):

        self.head=None

    def insert(self,data):

        if self.head:

            temp=self.head

            while(temp.next):

                temp=temp.next

            temp.next=data

        else:

            self.head=data

    def insert_at_begin(self,n):

        if self.head==None:
```

```
            self.head=n
        else:
            n.next=self.head
            self.head=n
    def insert_at_end(self,n):
        if self.head==None:
            self.head=n
        else:
            temp=self.head
            while temp.next!=None:
                temp=temp.next
            temp.next=n
    def insert_at_after(self,n):
        if self.head==None:
            self.head=n
        else:
            temp=self.head
            ele=int(input("enter the ele"))
    def delete_at_begin(self):
        if self.head==None:
            print("List is Empty Deletion Not possible")
        else:
            temp=self.head
            self.head=temp.next
```

```
            del(temp)
    def delete_at_end(self):
        if self.head==None:
            print("List is Empty Deletion Not possible")
        else:
            temp2=self.head
            while temp2.next!=None:
                temp1=temp2
                temp2=temp2.next
            temp1.next=None
            del(temp2)
    def traverse(self):
        temp=self.head
        while(temp):
            print(temp.data,end="->")
            temp=temp.next
ll=linkedlist()
while True:
    print("\n***single linked list***")

print("1.create\n2.traverse\n3.insert_at_begin\n4.insert_at_end\n5.dele_at_begin\n6.dele_at_end\n7.Exit")
    ch=int(input("enter your choice"))
    if ch==1:
        n=int(input("enter the node data"))
```

```
        n1=node(n)
        ll.insert(n1)
    elif ch==2:
        ll.traverse()
    elif ch==3:
        n=int(input("enter the new data"))
        n1=node(n)
        ll.insert_at_begin(n1)
    elif ch==4:
        n=int(input("enter the new data"))
        n1=node(n)
        ll.insert_at_end(n1)
    elif ch==5:
        ll.delete_at_begin()
    elif ch==6:
        ll.delete_at_end()
    elif ch==7:
        print("Exiting")
        break
    else:
        print("invalid choice")
```

Output:

```
In [1]: runfile('D:/Y20AIT453/8.linked_list.py', wdir='D:/Y20AIT453')

***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice1

enter the node data10

***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice1

enter the node data20

***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice1

enter the node data30

***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit
```

```
enter your choice2
10->20->30->
***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice3

enter the new data0

***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice2
0->10->20->30->
***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice4

enter the new data40

***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice2
0->10->20->30->40->
***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice5
```

```
***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice2
10->20->30->40->
***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit


enter your choice6

***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice2
10->20->30->
***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit
```

```
***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice2
30->
***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice5


***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice5
List is Empty Deletion Not possible

***single linked list***
1.create
2.traverse
3.insert_at_begin
4.insert_at_end
5.dele_at_begin
6.dele_at_end
7.Exit

enter your choice7
Exiting
```

9.Program

Aim: Write a Python Program to implement Calculator Using Inheritance?

Source Code:

```
# -*- coding: utf-8 -*-

"""Created on Sun Jul 31 14:40:24 2022@author: BHARGAV"""

import math

class generalcal():

    def __init__(self,n1,n2):

        self.n1=n1

        self.n2=n2

    def add(self):

        return self.n1+self.n2

    def sub(self):

        return self.n1-self.n2

    def mul(self):

        return self.n1*self.n2

    def div(self):

        return self.n1/self.n2

class casio(generalcal):

    def __init__(self,n1,n2):

        super().__init__(n1,n2)

    def logarithamic(self):

        return math.log(self.n1,self.n2)

    def sin(self):
```

```
        return math.sin(math.pi/n1)
    def cos(self):
        return math.cos(math.pi/n1)
    def tan(self):
        return math.tan(math.pi/n1)
class advancedcasio(casio):
    def __init__(self,n1,n2):
        super().__init__(n1,n2)
    def squareroot(self):
        return math.sqrt(n1)
    def factorial(self):
        return math.factorial(n1)
while True:
    print("\n1.Calculator\n2.Casio Calculator\n3.Adcanced Casio Calculator\n4.Exit
Calculator")
    ch=int(input("choose your calculator Type: "))
    if ch==1:
        while True:
            print("\n---Calculator---")
            print("\n1.addition\n2.substraction\n3.multiplication\n4.division\n5.exit")
            ch=int(input("Enter Mathematical operation choice"))
            if ch==1:
                n1=int(input("Enter 1st number:"))
                n2=int(input("Enter 2nd number:"))
                x=generalcal(n1,n2)
```

```
            print("\nAddition of {}+{} = {}".format(n1,n2,x.add()))
        elif ch==2:
            n1=int(input("Enter 1st number:"))
            n2=int(input("Enter 2nd number:"))
            x=generalcal(n1,n2)
            print("\nSubstraction of {}-{} = {}".format(n1,n2,x.sub()))
        elif ch==3:
            n1=int(input("Enter 1st number:"))
            n2=int(input("Enter 2nd number:"))
            x=generalcal(n1,n2)
            print("\nMultiplication of {}*{} = {}".format(n1,n2,x.mul()))
        elif ch==4:
            n1=int(input("Enter 1st number:"))
            n2=int(input("Enter 2nd number:"))
            x=generalcal(n1,n2)
            print("\nDivision of {}/{} = {}".format(n1,n2,x.div()))
            print(x.div())
        elif ch==5:
            break
        else:
            print("Invalid choice")
    elif ch==2:
        while True:
            print("\n---Casio Calculator---")
```

```
print("\n1.addition\n2.substraction\n3.multiplication\n4.division\n5.logarithamic
n6.sin\n7.cos\n8.tan\n9.exit")
ch=int(input("Enter your choice"))
if ch==1:
    n1=int(input("Enter 1st number: "))
    n2=int(input("Enter 2nd number: "))
    y=casio(n1,n2)
    print("\nAddition of {}+{} = {}".format(n1,n2,y.add()))
elif ch==2:
    n1=int(input("Enter 1st number: "))
    n2=int(input("Enter 2nd number: "))
    y=casio(n1,n2)
    print("\nSubstraction of {}-{} = {}".format(n1,n2,y.sub()))
elif ch==3:
    n1=int(input("Enter 1st number: "))
    n2=int(input("Enter 2nd number: "))
    y=casio(n1,n2)
    print("\nMultiplication of {}*{} = {}".format(n1,n2,y.mul()))
elif ch==4:
    n1=int(input("Enter 1st number: "))
    n2=int(input("Enter 2nd number: "))
    y=casio(n1,n2)
    print("\nDivision of {}/{} = {}".format(n1,n2,y.div()))
elif ch==5:
```

```
        n1=int(input("Enter number: "))
        n2=int(input("Enter base: "))
        y=casio(n1,n2)
        print("\nlogarithamic of {} base {} = {}".format(n1,n2,y.logarithamic()))
    elif ch==6:
        n1=int(input("Enter n1 in sin(pi/n1) format: "))
        n2=0
        y=casio(n1,n2)
        print("\nSin(pi/{}) = {}".format(n1,y.sin()))
    elif ch==7:
        n1=int(input("Enter n1 in cos(pi/n1) format: "))
        n2=0
        y=casio(n1,n2)
        print("\nCos(pi/{}) = {}".format(n1,y.cos()))
    elif ch==8:
        n1=int(input("Enter n1 in tan(pi/n1) format: "))
        n2=0
        y=casio(n1,n2)
        print("\nTan(pi/{}) = {}".format(n1,y.tan()))
    elif ch==9:
        break
    else:
        print("Invalid choice")
```

```
    elif ch==3:
        while True:
            print("\n---Advanced Casio Calculator---")

print("\n1.addition\n2.substraction\n3.multiplication\n4.division\n5.logarithamic\n6.sin\n7.cos\n8.tan\n9.square root\n10.factorial\n11.exit")
            ch=int(input("Enter your choice"))
            if ch==1:
                n1=int(input("Enter 1st number: "))
                n2=int(input("Enter 2nd number: "))
                z=advancedcasio(n1, n2)
                print("\nAddition of {}+{} = {}".format(n1,n2,z.add()))
            elif ch==2:
                n1=int(input("Enter 1st number: "))
                n2=int(input("Enter 2nd number: "))
                z=advancedcasio(n1, n2)
                print("\nSubstraction of {}-{} = {}".format(n1,n2,z.sub()))
            elif ch==3:
                n1=int(input("Enter 1st number: "))
                n2=int(input("Enter 2nd number: "))
                z=advancedcasio(n1, n2)
                print("\nMultiplication of {}*{} = {}".format(n1,n2,z.mul()))
            elif ch==4:
                n1=int(input("Enter 1st number: "))
                n2=int(input("Enter 2nd number: "))
```

```
        z=advancedcasio(n1, n2)
        print("\nDivision of {}/{} = {}".format(n1,n2,z.div()))
    elif ch==5:
        n1=int(input("Enter number: "))
        n2=int(input("Enter base: "))
        z=advancedcasio(n1, n2)
        print("\nlogarithamic of {} base {} = {}".format(n1,n2,z.logarithamic()))
    elif ch==6:
        n1=int(input("Enter n1 in sin(pi/n1) format: "))
        n2=0
        z=advancedcasio(n1, n2)
        print("\nSin(pi/{}) = {}".format(n1,z.sin()))
    elif ch==7:
        n1=int(input("Enter n1 in cos(pi/n1) format: "))
        n2=0
        z=advancedcasio(n1, n2)
        print("\nCos(pi/{}) = {}".format(n1,z.cos()))
    elif ch==8:
        n1=int(input("Enter n1 in tan(pi/n1) format: "))
        n2=0
        z=advancedcasio(n1, n2)
        print("\nTan(pi/{}) = {}".format(n1,z.tan()))
    elif ch==9:
        n1=int(input("Enter square root number: "))
```

```
            n2=0
            z=advancedcasio(n1, n2)
            print("Square root of {} = {}".format(n1,z.squareroot()))
        elif ch==10:
            n1=int(input("Enter factorial number: "))
            n2=0
            z=advancedcasio(n1, n2)
            print("factorial of {} = {}".format(n1,z.factorial()))
        elif ch==11:
            break
    elif ch==4:
        print("\nCalculator Exited")
        break
```

Output:

```
In [8]: runfile('D:/Y20AIT453/9.calculator.py', wdir='D:/Y20AIT453')


1.Calculator
2.Casio Calculator
3.Adcanced Casio Calculator
4.Exit Calculator

choose your calculator Type: 1

---Calculator---

1.addition
2.substraction
3.multiplication
4.division
5.exit

Enter Mathematical operation choice4

Enter 1st number:6

Enter 2nd number:7

Division of 6/7 = 0.8571428571428571
0.8571428571428571

---Calculator---

1.addition
2.substraction
3.multiplication
4.division
5.exit

Enter Mathematical operation choice5

1.Calculator
2.Casio Calculator
3.Adcanced Casio Calculator
4.Exit Calculator

choose your calculator Type: 2
```

```
---Casio Calculator---

1.addition
2.substraction
3.multiplication
4.division
5.logarithamic
6.sin
7.cos
8.tan
9.exit

Enter your choice5

Enter number: 67

Enter base: 3

logarithamic of 67 base 3 = 3.8272761580780035
```

```
---Casio Calculator---

1.addition
2.substraction
3.multiplication
4.division
5.logarithamic
6.sin
7.cos
8.tan
9.exit

Enter your choice7

Enter n1 in cos(pi/n1) format: 6

Cos(pi/6) = 0.8660254037844387
```

```
---Casio Calculator---

1.addition
2.substraction
3.multiplication
4.division
5.logarithamic
6.sin
7.cos
8.tan
9.exit

Enter your choice9

1.Calculator
2.Casio Calculator
3.Adcanced Casio Calculator
4.Exit Calculator
```

```
choose your calculator Type: 3

---Advanced Casio Calculator---

1.addition
2.substraction
3.multiplication
4.division
5.logarithamic
6.sin
7.cos
8.tan
9.square root
10.factorial
11.exit

Enter your choice3

Enter 1st number: 7

Enter 2nd number: 6

Multiplication of 7*6 = 42
```

```
---Advanced Casio Calculator---

1.addition
2.substraction
3.multiplication
4.division
5.logarithamic
6.sin
7.cos
8.tan
9.square root
10.factorial
11.exit

Enter your choice10

Enter factorial number: 5
factorial of 5 = 120

---Advanced Casio Calculator---
```

```
1.addition
2.substraction
3.multiplication
4.division
5.logarithamic
6.sin
7.cos
8.tan
9.square root
10.factorial
11.exit

Enter your choice9

Enter square root number: 6
Square root of 6 = 2.449489742783178
```

```
---Advanced Casio Calculator---

1.addition
2.substraction
3.multiplication
4.division
5.logarithamic
6.sin
7.cos
8.tan
9.square root
10.factorial
11.exit

Enter your choice11

1.Calculator
2.Casio Calculator
3.Adcanced Casio Calculator
4.Exit Calculator

choose your calculator Type: 4

Calculator Exited
```

10.Program

Aim:- write a python program to implement the polygon using inheritance

Source Code:

```
# -*- coding: utf-8 -*-
"""Created on Tue Aug  2 22:02:55 2022@author: BHARGAVA"""
import math
class polygon:
    def no_of_sides(self):
        return 0
    def area(self):
        return 0
    def perimeter(self):
        return 0
class triangle(polygon):
    def no_of_sides(self):
        print("3")
    def area(self):
        base=int(input("enter base:"))
        height=int(input("enter height:"))
        print(1/2*base*height)
    def perimeter(self):
        a=int(input("enter a value:"))
        b=int(input("enter b value:"))
        c=int(input("enter c value:"))
        if a+b>c:
            print(a+b+c)
        else:
            print("invalid triangle:")
class rhombos(polygon):
    def no_of_sides(self):
        print("4")
    def area(self):
```

```
        p=int(input("enter p value:"))
        q=int(input("enter q value:"))
        print(p*q/2)
    def perimeter(self):
        a=int(input("enter a value:"))
        print(4*a)
class pentagon(polygon):
    def no_of_sides(self):
        print("5")
    def area(self):
        a=int(input("enter a value:"))
        print(1/4*math.sqrt(5*(5+2*math.sqrt(5)))*a*2)
    def perimeter(self):
        a=int(input("enter a value:"))
        print(5*a)
class hexagon(polygon):
    def no_of_sides(self):
        print("6")
    def area(self):
        a=int(input("enter a value:"))
        print((3*(math.sqrt(3)/2))*a**2)
    def perimeter(self):
        a=int(input("enter a value:"))
        print(6*a)
while True:
    print("1.triangle\n2.rhombos\n3.pentagon\n4.hexagon\n5.exit")
    ch=int(input("enter your choice:"))
    if ch==1:
        while True:
            tri=triangle()
            print("1.no.of sides\n2.area\n3.peremeter")
            c=int(input("enter your choice"))
            if c==1:
                tri.no_of_sides()
```

```
        elif c==2:
            tri.area()
        elif c==3:
            tri.perimeter()
        else:
            print("invalid choice")
        ch=input("Do you want to continue Y/N")
        if ch=='n' or ch=='N':
            break
        else:
            continue
    if ch==2:
        while True:
            rho=rhombos()
            print("1.no.of sides\n2.area\n3.peremeter")
            c=int(input("enter your choice"))
            if c==1:
                rho.no_of_sides()
            elif c==2:
                rho.area()
            elif c==3:
                rho.perimeter()
            else:
                print("invalid choice")
            ch=input("Do you want to continue Y/N")
            if ch=='n' or ch=='N':
                break
            else:
                continue
    elif ch==3:
        while True:
            pen=pentagon()
            print("1.no.of sides\n2.area\n3.peremeter")
            c=int(input("enter your choice"))
```

```
        if c==1:
            pen.no_of_sides()
        elif c==2:
            pen.area()
        elif c==3:
            pen.perimeter()
        else:
            print("invalid choice")
        ch=input("Do you want to continue Y/N")
        if ch=='n' or ch=='N':
            break
        else:
            continue
    elif ch==4:
        while True:
            hexa=hexagon()
            print("1.no.of sides\n2.area\n3.peremeter")
            c=int(input("enter your choice"))
            if c==1:
                hexa.no_of_sides()
            elif c==2:
                hexa.area()
            elif c==3:
                hexa.perimeter()
            else:
                print("invalid choice")
            ch=input("Do you want to continue Y/N")
            if ch=='n' or ch=='N':
                break
            else:
                continue
    elif ch==5:
        print("exiting..")
        break
```

Output:

```
In [9]: runfile('D:/Y20AIT453/POLYGON.PY', wdir='D:/Y20AIT453')
1.triangle
2.rhombos
3.pentagon
4.hexagon
5.exit

enter your choice:1
1.no.of sides
2.area
3.peremeter

enter your choice1
3

Do you want to continue Y/NY
1.no.of sides
2.area
3.peremeter

enter your choice2

enter base:4

enter height:5
10.0

Do you want to continue Y/NN
1.triangle
2.rhombos
3.pentagon
4.hexagon
5.exit

enter your choice:2
1.no.of sides
2.area
3.peremeter
```

```
enter your choice1
4

Do you want to continue Y/NY
1.no.of sides
2.area
3.peremeter

enter your choice2

enter p value:5

enter q value:2
5.0

Do you want to continue Y/NN
1.triangle
2.rhombos
3.pentagon
4.hexagon
5.exit
```

```
enter your choice:4
1.no.of sides
2.area
3.peremeter

enter your choice1
6

Do you want to continue Y/NY
1.no.of sides
2.area
3.peremeter

enter your choice3

enter a value:5
30
```

```
Do you want to continue Y/NN
1.triangle
2.rhombos
3.pentagon
4.hexagon
5.exit

enter your choice:5
exiting..
```

Program 11)

Aim: Write a Python program to establish a connection for sqlite3 database and perform the following:

i.create a table in database ii. insert data into a table iii. access the data from the table

Source code:

i.create a table in database

Source Code:

```
# -*- coding: utf-8 -*-
"""
Created on Thu Aug 11 09:51:38 2022
@author: BHARGAV
"""
import sqlite3
try:
    con=sqlite3.connect('employee.db')
    cr='''CREATE TABLE emp(id INTEGER PRIMARY KEY,
                    name TEXT NOT NULL,
                    email TEXT NOT NULL UNIQUE,
                    joining_date datetime,
                    salary REAL NOT NULL);'''
    cursor=con.cursor()
    print("successfully connected to sqlite")
    cursor.execute(cr)
    con.commit()
    print("sqlite table created")
    cursor.close()
except sqlite3.Error as error:
    print("Error while creating a sqlite table",error)
finally:
    if con:
        con.close()
        print("sqlite connection is closed")
```

output:

```
In [11]: runfile('D:/Y20AIT453/10.create_a_DataBase.py', wdir='D:/Y20AIT453')
successfully connected to sqlite
sqlite table created
sqlite connection is closed
```

ii) insert data into a table

source code:

```
# -*- coding: utf-8 -*-
"""
Created on Thu Aug 11 09:52:02 2022

@author: BHARGAV
"""

import sqlite3
try:
    con=sqlite3.connect('employee.db')
    cursor=con.cursor()
    print("successfully connected to sqlite")
    cr="""INSERT INTO emp
    values(54,'Kommineni Bhargav','bhargavkommineni03@gmail.com','2022-04-
23',1000000.0)"""
    count=cursor.execute(cr)
    con.commit()
    print("record inserted successfully into emp table",cursor.rowcount)
    cursor.close()
except sqlite3.Error as error:
    print("failed to insert data into sqlite table",error)
finally:
    if con:
        con.close()
        print("the sqlite connection is closed")
```

output:

```
In [12]: runfile('D:/Y20AIT453/10.insert_a_record.py', wdir='D:/Y20AIT453')
successfully connected to sqlite
record inserted successfully into emp table 1
the sqlite connection is closed
```

iii) access the data from the table

Source Code:

```
# -*- coding: utf-8 -*-
"""
Created on Thu Aug 11 09:52:53 2022
@author: BHARGAV
"""
import sqlite3
def readsqliteTable():
    try:
        con=sqlite3.connect('employee.db')
        cursor=con.cursor()
        print("connected to sqlite")
        cr="""select * from emp"""
        cursor.execute(cr)
        records=cursor.fetchall()
        print("Total rows are:")
        print("printing each row")
        for row in records:
            print("Id:",row[0])
            print("Name:",row[1])
            print("email:",row[2])
            print("JoiningDate:",row[3])
            print("salary:",row[4])
            print("\n")
        cursor.close()
    except sqlite3.Error as error:
```

```
        print("Failed to read data from sqlite table",error)
    finally:
        if con:
            print("The sqlite connection is closed")
readsqliteTable()
```

output:

```
In [13]: runfile('D:/Y20AIT453/10.access_a_record.py', wdir='D:/Y20AIT453')
connected to sqlite
Total rows are:
printing each row
Id: 54
Name: Kommineni Bhargav
email: bhargavkommineni03@gmail.com
JoiningDate: 2022-04-23
salary: 1000000.0


The sqlite connection is closed
```