1.

class Complex:

count = 0

def \_\_init\_\_(self,real,img):

self.real=real

self.img=img

Complex.count += 1

def addComplex(self,ob2):

return Complex(self.real + ob2.real,self.img + ob2.img)

def subComplex(self,ob2):

return Complex(self.real - ob2.real,self.img - ob2.img)

def mulComplex(self,ob2):

return Complex((self.real\*ob2.real)-(self.img\*ob2.img),(self.real\*ob2.img)-(self.img\*ob2.real))

def display(self):

if self.img<0:

print(self.real,"-",abs(self.img),end="i")

else:

print(self.real,"+",self.img,end="i")

def \_\_del\_\_(self):

print("Destructor called, object deleted")

#Main function starts...

real = int(input("Enter real value for 1st complex number: "))

img = int(input("Enter imaginary value for 1st complex number: "))

ob1 = Complex(real,img)

real = int(input("Enter real value for 2nd complex number: "))

img = int(input("Enter imaginary value for 2nd complex number: "))

ob2 = Complex(real,img)

add = ob1.addComplex(ob2)

sub = ob1.subComplex(ob2)

mul = ob1.mulComplex(ob2)

print("1st Complex No. : ",end="")

ob1.display()

print("\n2nd Complex No. : ",end="")

ob2.display()

print("\nAddition : ",end="")

add.display()

print("\nSubstracion : ",end="")

sub.display()

print("\nMultiplication : ",end="")

mul.display()

print("\nNo. of objects created = ",Complex.count)

2.

#Shows the attributes of stack

class Stack:

def \_\_init\_\_(self):

self.stackarr=[]

def push(self,item):

self.stackarr.append(item)

def pop(self):

item = self.stackarr[-1]

del self.stackarr[-1]

return item

def display(self):

for i in range(len(self.stackarr)-1,-1,-1):

print(self.stackarr[i])

def getChoice():

print("Menu\n 1.PUSH\n 2.POP\n 3.DISPLAY\n 4.EXIT")

choice = int(input("Enter Your Choice: "))

return choice

# Main function starts here....

print("Program Starts")

choice = getChoice()

ob = Stack()

while choice!=4:

if choice==1:

item = int(input("Enter value to push"))

ob.push(item)

elif choice==2:

if(len(ob.stackarr)!=0):

item = ob.pop()

print("Popped item is ",item)

else:

print("Stack Underflow")

elif choice==3:

if(len(ob.stackarr)!=0):

ob.display()

else:

print("Stack Underflow")

else:

print("Invalid Choice, please choose again\n")

choice = getChoice()

3.

#Shows the attributes of que

class Stack:

count = 0

def \_\_init\_\_(self):

self.stackarr=[]

Stack.count=0

def insert(self,item):

self.stackarr.append(item)

def delete(self):

item = self.stackarr[Stack.count]

del self.stackarr[Stack.count]

Stack.count += 1

return item

def display(self):

for i in range(len(self.stackarr)):

print(self.stackarr[i],end=" ")

def getChoice():

print("\nMenu\n 1.INSERT\n 2.DELETE\n 3.DISPLAY\n 4.EXIT")

choice = int(input("Enter Your Choice: "))

return choice

# Main function starts here....

print("Program Starts")

choice = getChoice()

ob = Stack()

while choice!=4:

if choice==1:

item = int(input("Enter value to insert"))

ob.insert(item)

elif choice==2:

if(len(ob.stackarr)!=0):

item = ob.delete()

print("Deleted item is ",item)

else:

print("Que Underflow")

elif choice==3:

if(len(ob.stackarr)!=0):

ob.display()

else:

print("Stack Underflow")

else:

print("Invalid Choice, please choose again\n")

choice = getChoice()