**IMPLEMENTATION – EX 2 :**

class LibraryItems:

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

self.dispitems = dispitems

def display(self):

print()

for i in self.dispitems:

if isinstance(i, Author):

i.display()

continue

print(i)

class Book(LibraryItems):

def \_\_init\_\_(self,ISBN,DDS,subject,title,author):

self.ISBN = ISBN

self.DDS = DDS

self.subject = subject

self.title = title

self.author = author

self.dispitems = [ISBN,DDS,subject,title,author]

super().\_\_init\_\_(self.dispitems)

def display(self):

print("The book details are :")

super().display()

class Magazine(LibraryItems):

def \_\_init\_\_(self,UPC,title,volume,issue\_num):

self.UPC = UPC

self.title = title

self.volume = volume

self.issue\_num = issue\_num

self.dispitems = [UPC,title,volume,issue\_num]

super().\_\_init\_\_(self.dispitems)

def display(self):

print("The magazine details are :")

super().display()

class DVD(LibraryItems):

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

self.UPC = UPC

self.dispitems = [UPC]

super().\_\_init\_\_(self.dispitems)

def display(self):

print("The DVD details are :")

super().display()

class CD(LibraryItems):

def \_\_init\_\_(self,UPC,author):

self.UPC = UPC

self.author = author

self.dispitems = [UPC,author]

super().\_\_init\_\_(self.dispitems)

def display(self):

print("The CD details are :")

super().display()

class Author:

def \_\_init\_\_(self,fname,lname):

self.fname = fname

self.lname = lname

def display(self):

print(self.fname + ' ' + self.lname)

class Contributer:

def \_\_init\_\_(self,fname,lname,books):

self.fname = fname

self.lname = lname

self.books = books

self.dispitems = [fname,lname,books]

def display(self):

print(f"Contributer name is : {self.fname} {self.lname}")

print("Books donated along with quantities are:")

for i in self.books:

print(f"Book is : {i[0]} \nQuantity is : {i[1]}\n")

def find\_total(self):

s = 0

for i in self.books:

s += i[1]

return s

class Catalog:

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

self.items = items

def find(self):

option = int(input("1.Enter 1 if you want to search a Book.\n2.Enter 2 if you want to search a CD.\n3.Enter 3 if you want to search a Magazine.\n4.Enter 4 if you want to search a DVD.\n"))

if option == 1:

self.findbook()

if option == 2:

self.findCD()

if option == 3:

self.findMag()

if option == 4:

self.findDVD()

def findbook(self):

choice = int(input("Enter how you want to search :\n1. Enter 1 to search via ISBN.\n2. Enter 2 to search via certain subject.\n3. Enter 3 to search via title.\n4. Enter 4 to search via author last name.\n"))

val = input("Enter value : ")

found = False

for i in self.items:

if isinstance(i, Book):

if choice == 1:

if i.ISBN == val:

found = True

i.display()

print()

elif choice == 2:

if i.subject == val:

found = True

i.display()

print()

elif choice == 3:

if i.title == val:

found = True

i.display()

print()

elif choice == 4:

if i.author.lname == val:

found = True

i.display()

print()

if not found:

print("Book does not exist.\n")

def findCD(self):

choice = int(input("1. Enter 1 if you want to search via UPC.\n2. Enter 2 if you want to search via author last name.\n"))

val = input("Enter value : ")

found = False

for i in self.items:

if isinstance(i,CD):

if choice == 1:

if i.UPC == val:

found = True

i.display()

print()

if choice == 2:

if i.author.lname == val:

found = True

i.display()

print()

if not found:

print("CD does not exist.\n")

def findDVD(self):

val = input("Enter UPC : ")

found = False

for i in self.items:

if isinstance(i,DVD):

if i.UPC == val:

found = True

i.display()

print()

if not found:

print("DVD does not exist.\n")

def findMag(self):

choice = int(input("1. Enter 1 to search via UPC.\n2. Enter 2 to search via Title.\n3. Enter 3 to search via volume.\n4. Enter 4 to search via issue number.\n"))

val = input("Enter value : ")

found = False

for i in self.items:

if isinstance(i,Magazine):

if choice == 1:

if i.UPC == val:

found = True

i.display()

print()

elif choice == 2:

if i.title == val:

found = True

i.display()

print()

elif choice == 3:

if i.volume == val:

found = True

i.display()

print()

elif choice == 4:

if i.issue\_num == val:

found = True

i.display()

print()

if not found:

print("Magazine does not exist.\n")

#driver code

if \_\_name\_\_ == '\_\_main\_\_':

#The code provided here will not be executed when imported

#writing down authors

auth1 = Author('JK','Rowling')

auth2 = Author('Arthur','Kingsley')

#writing down books

book1 = Book('a100','b2','fiction','Harry Potter',auth1)

book2 = Book('a101','c2','History','Trojan Horse',auth2)

#writing down cd

cd1 = CD('ca100',auth1)

cd2 = CD('ca101',auth2)

#writing down magazines

mag1 = Magazine('ma100','The Moon','vol1','y155')

mag2 = Magazine('ma101','The Sun','vol2','z100')

dvd1 = DVD('da100')

dvd2 = DVD('da101')

#creating a catalog using given data

catalog = Catalog([book1,book2,cd1,cd2,mag1,mag2,dvd1,dvd2])

#finding book

catalog.findbook()

print()

#finding cd

catalog.findCD()

print()

#finding magazine

catalog.findMag()

print()

#finding dvd

catalog.findDVD()

print()

#finding anything using common function

catalog.find()

print()

**OUTPUT:**

**Enter how you want to search :**

**1. Enter 1 to search via ISBN.**

**2. Enter 2 to search via certain subject.**

**3. Enter 3 to search via title.**

**4. Enter 4 to search via author last name.**

**1**

**Enter value : a100**

**The book details are :**

**a100**

**b2**

**fiction**

**Harry Potter**

**JK Rowling**

**1. Enter 1 if you want to search via UPC.**

**2. Enter 2 if you want to search via author last name.**

**2**

**Enter value : ca101**

**CD does not exist.**