OOP Project

Aim: To design and implement an application using the OOP concepts.

1. **Problem Statement** – Write a brief description about the system being implemented.

   The program that I am implementing is used to store information about a particular course, it includes details of the textbook being used and of the course instructor teaching it, this includes fields such as the names of the professor, the author and the textbook in use

2. **Code** – Min 3 classes with at least one relationship being aggregation/composition and with proper functionality.

Code:

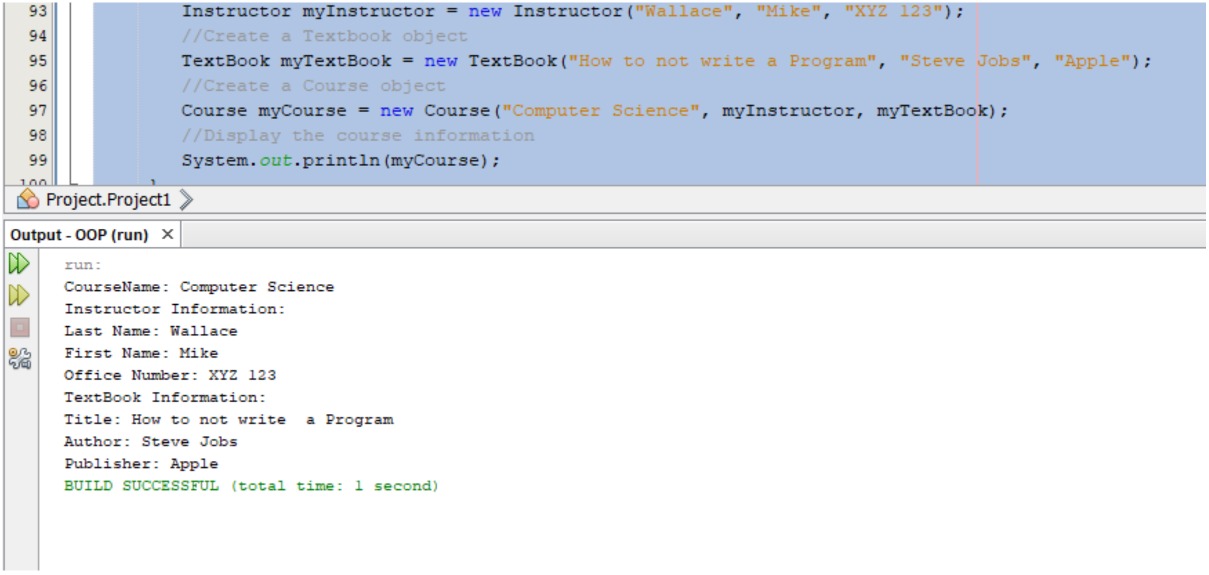
```
package Project;

class Course
{
   String courseName;
   Instructor Instructor;
   TextBook textBook;
   Course(String name,Instructor instr,TextBook text)
   {
      courseName=name;
      Instructor=instr;
      textBook=text;
   }
   public String getName()
   {
      return courseName;
   }
   public Instructor getInstructor()
   {
      return Instructor;
   }
   public TextBook getTextBook()
   {
      return textBook;
   }
   @Override
   public String toString()
   {
      return "CourseName: 
"+courseName+"\n"+Instructor.toString()+"\n"+textBook.toString();
   }
}
class Instructor
{
   String firstName;
   String lastName;
   String officeNumber;
   Instructor(String lname,String fname,String office)
   {
      firstName=fname;
      lastName=lname;
```

```
        officeNumber=office;
    }
    Instructor(Instructor object2)
    {
        firstName=object2.firstName;
        lastName=object2.lastName;
        officeNumber=object2.officeNumber;
    }
    public void set(String lname,String fname,String office)
    {
        firstName=fname;
        lastName=lname;
        officeNumber=office;
    }
    @Override
    public String toString()
    {
        return "Instructor Information:\nLast Name: "+lastName+"\nFirst Name: 
"+firstName+"\nOffice Number: "+officeNumber;
    }
}
class TextBook
{
    String title;
    String author;
    String publisher;
    TextBook(String title,String author,String publisher)
    {
        this.title=title;
        this.author=author;
        this.publisher=publisher;
    }
    TextBook(TextBook object2)
    {
       this.title=object2.title;
        this.author=object2.author;
        this.publisher=object2.publisher;
    }
    public void set(String title,String author,String publisher)
    {
        this.title=title;
        this.author=author;
        this.publisher=publisher;
    }
    public String toString()
    {
        return "TextBook Information:\nTitle: "+title+"\nAuthor: "+author+"\nPublisher: "+publisher;
    }
}
public class Project1{

     public static void main(String []args){
         // Create an Instructor object
        Instructor myInstructor = new Instructor("Wallace", "Mike", "XYZ 123");
        //Create a Textbook object
        TextBook myTextBook = new TextBook("How to not write a Program", "Steve Jobs", "Apple");
        //Create a Course object
        Course myCourse = new Course("Computer Science", myInstructor, myTextBook);
        //Display the course information
        System.out.println(myCourse);
     }
}
```

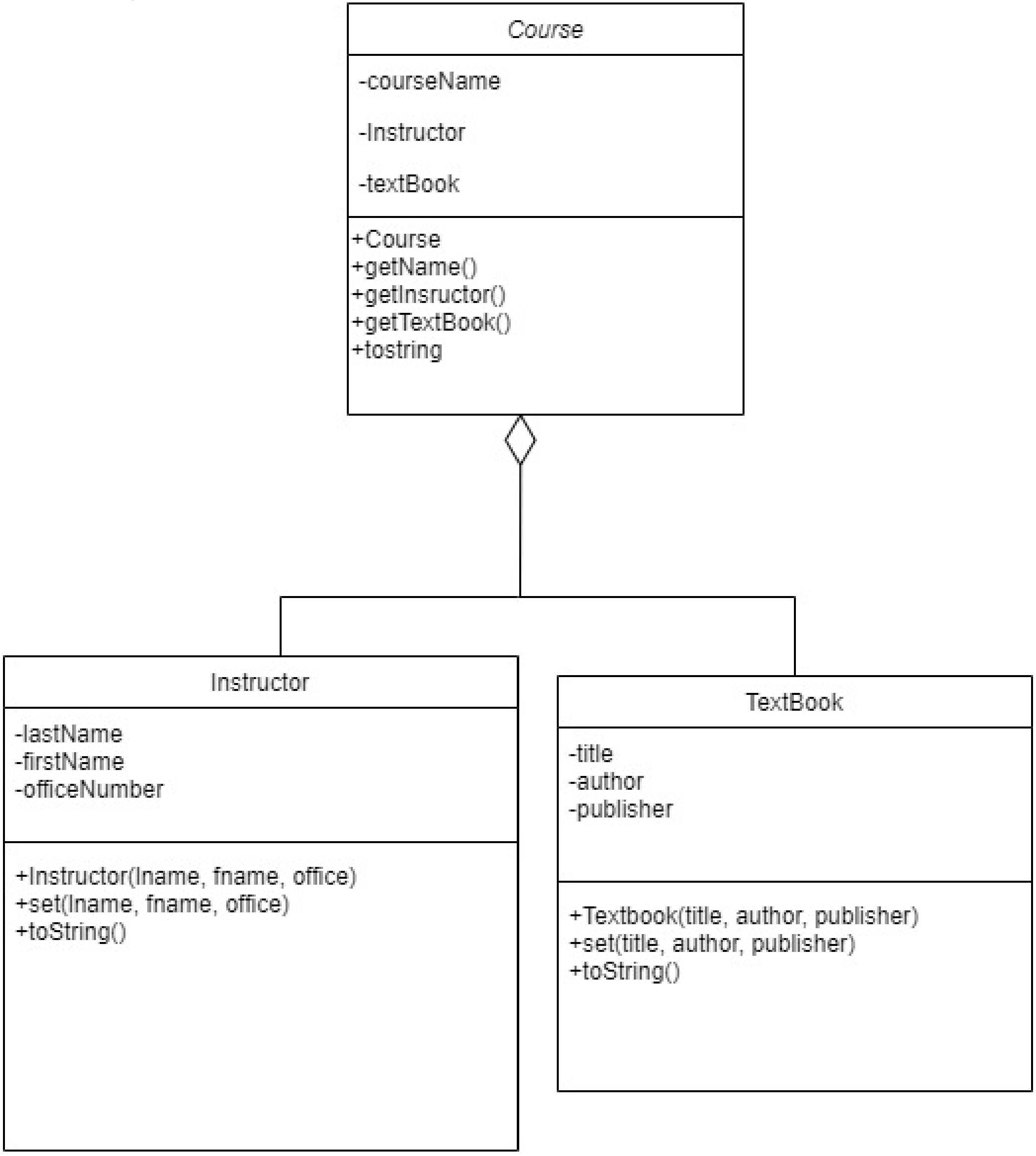
Output:



```
        Instructor myInstructor = new Instructor("Wallace", "Mike", "XYZ 123");
        //Create a Textbook object
        TextBook myTextBook = new TextBook("How to not write a Program", "Steve Jobs", "Apple");
        //Create a Course object
        Course myCourse = new Course("Computer Science", myInstructor, myTextBook);
        //Display the course information
        System.out.println(myCourse);
```

```
run:
CourseName: Computer Science
Instructor Information:
Last Name: Wallace
First Name: Mike
Office Number: XYZ 123
TextBook Information:
Title: How to not write  a Program
Author: Steve Jobs
Publisher: Apple
BUILD SUCCESSFUL (total time: 1 second)
```

3. **Class diagram** for the system being implemented



Course
-courseName
-Instructor
-textBook
+Course
+getName()
+getInsructor()
+getTextBook()
+tostring
Instructor
-lastName
-firstName
-officeNumber
+Instructor(lname, fname, office)
+set(lname, fname, office)
+toString()
TextBook
-title
-author
-publisher
+Textbook(title, author, publisher)
+set(title, author, publisher)
+toString()