Tutorial 12: Designing OO applications

Task 1: Write code from UML class diagrams

You are required to write an application that inputs and stores the titles and authors of ten books, and then outputs the book details to the console window. You are to use the UML class diagrams and accompanying pseudo-code given below. Your output should have a format similar to this screen shot.

```
Output
 Debugger Console  x    BookShop (run)  x
 What is the title of the next book? > hhh
 What is the name of the author? > hhh
 What is the title of the next book? > iii
 What is the name of the author? >
 What is the title of the next book? > jjj
 What is the name of the author? > jjj

 Book list
         Title                   Author
         ===================      ======================
         aaa                      aaa
         bbb                      Anon
         ccc                      ccc
         ddd                      ddd
         eee                      Anon
         fff                      fff
         ggg                      ggg
         hhh                      hhh
         iii                      Anon
         jjj                      jjj
```

```
                    Book

 - title : String -
   author : String



 + Book(title:String)
 + Book(title:String, author:String )
 + getTitle() : String
 + getAuthor() : String
```
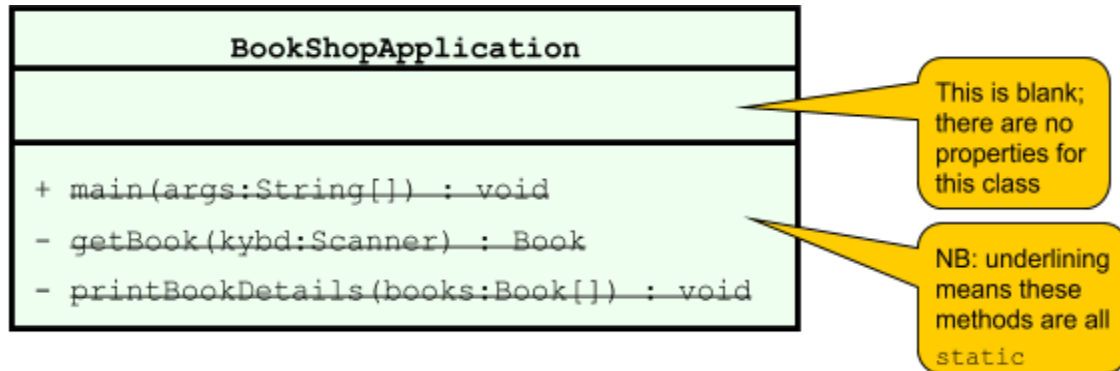
Pseudo-code for Book

```
Book(title:String)
      this.title = title
      author = "Anon"
```

All other methods have expected behaviour

Pseudo-code for BookShopApplication

```
main(args:String[]) : void kybd = a scanner for reading
      from the keyboard; create an array called books to
      hold 10 Book objects

      for i = 0, books.length do
           books[i] = getBook(kybd)
      end for
      printBookDetails(books)


       getBook(kybd:Scanner) : Book prompt = "What is
the title of the next book? > " read title using kybd

      prompt = "What is the name of the author? > "
      read author using kybd

      if author is blank    create
      new Book with title
      else
           create new Book with title and
      author end if
      return newly created Book
```

```
printBookDetails(books:Book[]) : void
      write "Book list" write "Title
      Author" write "=====   ======"

      for i=0, books.length do write title
           and author of books[i]
      end for
```

Step 1: Create a NetBeans project

Create a new project called `BookShop` in a folder called `T11`.

Step 2: Understand the UML diagrams

Make sure you understand the UML diagrams given above. Ask your tutor for clarification as needed.

Step 3: Create the classes

Add to your NetBeans project the required Java classes. Following the UML diagrams and pseudo-code precisely, write the Java code for the classes you have just created.

Step 4: Test your program

Run your program, and take a screen shot. Make sure your titles and author names are not the same as the illustration above.

Portfolio requirements:

- All your `.java` source code files from step 3

- An image file (`.jpg`, `.gif`, or `.png`) of your screen shot from step 4 with titles and author names different from the illustration above.