

**United International University**  
**CSE 1116 - OOP Lab**  
**Mid Assignment**  
**Total Marks : 15**

Q: Write Java codes for the following scenario:

1. Create a package named **Library**.
2. Create a class named **Book**, inside the Library package which will contain the following:
  - a) **Variables**: String title, String author, boolean isBorrowed, static final int max\_books
  - b) All the variables should be **private** and should have **getter/setter** functions
  - c) A **constructor** that will take two parameters title and author, and set isBorrowed to false
  - d) A method named **displayInfo** which will print the title and the author name of the book
  - e) A method named **displayInfo** which will take a boolean parameter **showStatus** and print the **isBorrowed** variable, along with the title and author, if the showStatus variable is true. If the showStatus variable is false, then it will only print the title and the author. You must use the **displayInfo** function in part (d) to write the function in part (e)
  - f) A method named **borrow** which will check if the book is borrowed or not. If it is not borrowed then print "You can borrow the book" and make isBorrowed true. If it is borrowed then print "You cannot borrow the book".
  - g) A method named **returnBook** which will check if the book is borrowed or not. If it is borrowed, then print "Returned the book" and make isBorrowed false. If it is not borrowed then print "Book is not borrowed"
3. Create a new package named **LibraryA** inside the Library package.
4. Create a class named **FictionBook** inside the LibraryA package which will **inherit** the Book class. The class will contain the following:
  - a) **Variables**: String genre
  - b) A **constructor** that will take 3 parameters: title, author and genre.
  - c) A method **displayInfo** which will print the title, author and the genre of the book. You must use the **parent** displayInfo method for this function
5. Create a new package named **LibraryB** inside the LibraryA package.

6. Create a class named **NonFictionBook** inside the LibraryB package which will **inherit** the Book class. The class will contain the following:
  - a) **Variables:** String subject
  - b) A **constructor** that will take 3 parameters: title, author and subject.
  - c) A method **displayInfo** which will take a parameter **showStatus**, which will print the title, author and the subject of the book. You must use the **parent** displayInfo(showStatus) method for this function. If the **showStatus** variable is true, then print the **isBorrowed** variable.
7. Create a class named **LibraryTest** inside the LibraryB package. This class will contain a main method where you will have to do the following:
  - a) Create a Book array named **myBooks** of size 3.
  - b) Create 2 Fictional books and 1 Non-Fictional book and set it to the **myBooks** array.
  - c) Call the displayInfo() and displayInfo(showStatus) function for each of the books inside the array.
  - d) Show use of borrow() and return() functions using one of the books in the array.