Java

Assignment - Day 2

Concept: Encapsulation & Inheritance

Objective: At the end of the assignment, participants will be able to:

- Implement classes & objects
- Make use of static members
- Use constructors for initializing an object
- Derive a class from an existing class

Problems:

1. Create a class **Book** which has following members:

   private int bookNo

   private String title

   private String author

   private float price

   Provide getter and setter methods for all the instance variables.

   Create a class **BookDetails** which has the main method. Create an object of the **Book** class. Initialize the object by reading inputs for the fields from the user.

2. Modify the Book class to include a **constructor** for initializing the instance variables. Perform the below validations in the constructor and print appropriate error message if the validation fails.
   a. Title of the book must have atleast 4 characters
   b. price must be in the range 1 to 5000

Also override the **toString()** method to print the details of the book.

3. Modify the class to include the below static members
   private static int bookCount;
   public int static getBookCount( )

   Also write a Static block to initialize bookCount to zero.

   Increase the bookCount by 1 when a new Book object is created.

4. Modify the main method to create an array of 3 Book objects. Ask user to enter the details and initialize them.

5. Finally allow user to search for a book by entering a book number. Print the details of the book if the number exists and an error message, otherwise.

6. Extend the Book class to create a class **EngineeringBook** derived from **Book** with an additional attribute
   private String category

   Provide setter and getter methods for type instance variable.

   Create an object of the EngineeringBook class and test.