Exercises Module 14 - Methods and Encapsulation

Task 1 - Getters

Continue working on the Amazon project from module 13. Add methods in the classes *Book* and *Movie* to get (retrieve) their data (the values in the instance variables in the objects). Add one method per variable.

Give these methods names according to the JavaBean standard. That is, a method for getting the value of a variable with the name *price* should be *getPrice*. It should take no input arguments and return the value from the variable.

Modify the test program so that when it is accessing the data from books and movies, it now uses the getter methods instead of getting the instance data directly from the variables.

Task 2 - Setters

Continue working on the Amazon project. Add methods in the classes *Book* and *Movie* to set (modify) their data (the values in the instance variables in the objects). Add one method per variable.

Give these methods names according to the JavaBean standard. That is, a method for setting the value of a variable with the name *price* should be set*Price*. It should take the modified value as an input argument and not return anything (void).

Modify the test program so that when it is modifying the data in books and movies, it now uses the setter methods instead of modifying the instance data directly in the variables.

Task 3 - Instance methods

Continue working on the Amazon project. Move the method for printing out the data from books and movies from the Main class to the books and movies themselves.

In the Book class, add an instance method *printBookDetails* that prints out the data from the book. Note that it should be an instance method, so not a static method. In contrast to the method in the test program in module 13, this method should not have an input argument. Since the method is in the book itself it can print out the values from the variables in the book directly.

Create the corresponding instance method in the Movie class, so that the data from a movie can be printed out on the movie object.

Modify the test program so that when it prints out the data of the books and movies, it now uses the instance methods in the book and movie instances, instead of the static methods in the test class.

Make sure that you add all books to the Book array, and all movies to the Movie array, and print out all information about books and movies by looping the arrays. You can remove any other direct calls to the print methods from the Main class if you have any of them left.

Task 4 - Encapsulation

Continue working on the Amazon project. Use encapsulation to protect the data in the Book and Movie classes. Have private access on all variables.

Does something break in the main method?

Do you need to change anything?

What is the benefits of encapsulation?