Homework 4

!! Make sure to also attach any classes you use in Question 3 !!

You should upload 4 files: Book.java, TestBooks.java, DiceGame.Java, and Die.java

1. Define a class named Book that contains:
   - An int data field named *pages* that stores the number of pages in the book.
   - A String data field named *title* that represents the title of the book.
   - A constructor with parameters for initializing pages and title.
   - The getter and setter methods for all data fields.
   - A toString method that returns book information, including the book title and pages.
   - The equals method that returns true if two books have the same title **and** the same number of pages.
   - The compareTo method that compares two books and returns -1 if the first book has less pages than the second one, 1 if the first book has more pages than the second one, and 0 if both books have same number of pages.

2. Write an application TestBooks that asks the user for a number of books read during summer. The application repeatedly creates that many book objects, and then prints to the screen information about the "smallest" book, (i.e. the book with the smallest number of pages), as well as the average number of pages per book read.

   Hint: Have counter variables pageSum and numBooks for keeping track of the total number of pages and the number of books. Other variables you may want to consider having are pages and title, for creating a new book object every time the user enters the page and title data.

   This program should make use of the compareTo method from Part 1 and a for-loop.

3. Using the Die class created in Chapter 4 (provided in Moodle), create an application that implements a simple dice game that a user can play against the computer. The objective of the game is to be the first to score 100 or more points (as explained below) after repeatedly rolling 2 dice.

   The program asks the user for a number between 2 (the lowest possible total from rolling 2 dice) and 12 (the highest total possible). The user "rolls" 2 dice up to 3 times. If the number chosen by the user comes up, the user wins 5 points. If the number does not come up within 3 rolls, the computer wins 3 points. The program should display whether the user or computer wins the game at the end. **The program should also display the scoreboard before each round and the outcome of each roll during the round.**