In-class exercises (lecture 13)

Save anything not completed during class for extra practice at your leisure. *Functional Java is highly likely to be on the final exam but you don't have a homework assignment on it. For this reason, I strongly recommend completing all of today's exercises before looking at the sample solutions.*

Exercise 1: Streams & lambdas

In functional package, FunctionalPractice class, main method:

- Use a List to store multiple Books
- Use streams & lambdas on the List to:
  1. Make a new List containing only books published before a certain date.
  2. Make a new List containing only books in a particular price range.
  3. Get the total price of all books in the list.
  4. Get the average price of all books in the list.

Refer to the Java 11 Streams docs (Google "Java 11 streams").

Exercise 2: Functions as object practice

Add two function objects to the FunctionalPractice class:

1. One of the function objects should discount a book by 10%
2. The other function object should double the price of a book.

Add a static method to the FunctionalPractice class:

```
public static Book adjustPrice(Book book, Function<Book, Book> adjuster)
```

This method could be used to either decrease or increase the price.

Exercise 3: More practice

Use only streams, lambdas, and function objects to complete the exercises in the functional package in this week's lecture code. You should not need to write standard methods or classes unless explicitly stated. You will need to edit Exercise3Grouping.java, Exercise4Comparator.java, Exercise5Sorting.java, Swimmer.java, and Exercise6Filtering.java.

Solutions are provided in the solutions package but try not to look at them unless you get really stuck! You should be able to figure everything out using only the slides and the docs, which are

linked in the Java files.