

SOFTWARE DEVELOPMENT METHODS

Basic streams

1. Given the following definitions:

```
Book b1 = new Book("Java 8 lambdas", "Richard Warbuton", 182, "O'Reilly");
Book b2 = new Book("Java 8 in action", "Raoul-Gabriel Urma", 497, "Manning");
Book b3 = new Book("Functional thinking", "Neal Ford", 179, "O'Reilly");
Book b4 = new Book("Learning scala", "Jason Swartz", 255, "O'Reilly");
Book b5 = new Book("Parallel and concurrent programming in Haskell",
    "Simon Marlow", 321, "O'Reilly");
Book b6 = new Book("Presentation patterns", "Neal Ford", 265,
    "Addisison Wesley");
List<Book> books = Arrays.asList(b1, b2, b3, b4, b5, b6);
```

Use streams operations to obtain:

- a. a list with the number of pages of all books.
 - b. a list with all the author names without duplicates.
 - c. a list with all book titles from O'Reilly.
 - d. a list with all the titles of the books about Java.
 - e. an ordered list with all surnames of the authors without duplicates
 - f. the book with the longest title.
 - g. the title of the book with the largest number of pages.
 - h. the average number of pages of all books published by O'Reilly.
 - i. the number of books published by each publisher(as a map with publisher as index).
 - j. the average number of pages of the books published by each author (as a map with author as index)
2. Define an infinite stream, which can generate: the powers of two as an ordered sequence: 2, 4, 8, 16, 32, etc.
 3. Define the method `int powerOf2(int n)`, which returns the smallest power of two which is not smaller than n , by using the stream defined in the previous exercise.
 4. Define an infinite stream, which can generate the sequence of arrays with two equal integer values: [0,0], [1,1], [2,2], etc.