Algorithms and Data structures

wk4 – Exercise – ExtendedArrayList

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In this exercise you practice with the use of functional interfaces and lambda expressions in the context of an extended Arraylist. You practice the generic implementation of the use of a function that is passed through a functional interface.

The example code imports a list of products from a text file into a custom class: ExtendedArrayList, and then you operate on this list using methods with functional parameters. You will use helper methods of the Product class, static methods of the Comparator interface and lambda expressions.

Please follow the following steps:

(Steps 1-4 are very similar to exercise1 of this week; you also can copy some code)

1. Unpack w4-exercise2-ExtendedArrayList-v21.x.zip
2. Complete ExtendedArrayListMain.importFromScanner to read and process all products from the input file.
3. Complete Product.fromLine to convert a text line into a Product instance
   Complete Product.toString to be able to display Product information at the console
4. Run the main program and verify that products are imported and displayed
5. Complete the implementations of **ExtendedArrayList.getLast**, **ExtendedArrayList.retainIf** and **ExtendedArrayList.removeSuccessiveDuplicates** by iterating over all items and with help of the method of the functional interface.
6. Complete the related steps in ExtendedArrayListMain.main which test your implementations. Below you find expected output.
7. Add unit tests to thoroughly test your implementations in ExtendedArrayList.

```
Welcome to the HvA ExtendedArrayList processor

Imported products:
[Kaiser broodje/0.20/100, Kaiser broodje/0.35/60, Pindakaas 600gr/4.95/7, Vruchtenhagel 400gr/2.75/8, Kaiser
broodje/0.40/80, Eieren 6st/1.45/15, Roomboter/1.50/25, Eieren 10st/2.10/15, Roomboter/1.75/27]

First product with a price above 2.00:
Pindakaas 600gr/4.95/7

Last product with a price above 2.00:
Eieren 10st/2.10/15

All products with at least 10 items in stock:
[Kaiser broodje/0.20/100, Kaiser broodje/0.35/60, Kaiser broodje/0.40/80, Eieren 6st/1.45/15,
Roomboter/1.50/25, Eieren 10st/2.10/15, Roomboter/1.75/27]

All products sorted by title:
[Eieren 10st/2.10/15, Eieren 6st/1.45/15, Kaiser broodje/0.20/100, Kaiser broodje/0.35/60, Kaiser
broodje/0.40/80, Roomboter/1.50/25, Roomboter/1.75/27]

All products with unique titles:
[Eieren 10st/2.10/15, Eieren 6st/1.45/15, Kaiser broodje/0.20/100, Roomboter/1.50/25]

Process finished with exit code 0
```