Computer Science 3A

Practical Assignment 2

23 February 2023

Time: 17:30 Marks: 50

Practical assignments must be uploaded to `eve.uj.ac.za` **before** 17h30 in the practical session.

Late submissions **will not be accepted**, and will therefore not be marked. You are **not allowed to collaborate** with any other student. You **must** upload your assignment to Eve **before** it will be marked. Remember to include Javadoc in your submission.

In order to budget properly, it is useful to keep track of one's spending habits. This can be done simply by making a list of recent purchases. In this week's practical we will be creating a Spending tracker list application that stores the products a user has purchased. You will be targeting the niche market of avid command line power users.

You are required to implement the following functions:

- **writeProductItemToFile** - A function that appends a new ProductItem to the current binary file.
- **readProductItemsFromFile** - A function that reads all the objects in the current binary file and loads them into a Single Linked List (SList).
- **addAfter** - Add an element after a given node in the list.
- **addBefore** - Add an element before a given node in the list.
- **remove** - Remove a specified node from the list. The removed element is returned.
- **search** - Returns the node that contains the element that is specified as a parameter.
- **toString** - The overridden method for displaying and serialising items in the Singly-Linked List.

You are required to implement a Java Program that realises the above operations.
The following files must be submitted to EVE:

1. *studentnumber*_p2.zip

Marksheet

1. Main: writeProductItemToFile [7]
2. Main: readProductItemsFromFile [7]
3. SList: prev [3]
4. SList: replace [1]
5. SList: insertAfter [3]
6. SList: insertBefore [5]
7. SList: remove [5]
8. SList: search [5]
9. SList: toString [4]
10. Compilation and Correct execution. [10]