

Assignment SU4: The MyLinkedList class

Objective:

This assignment is meant to help you understand the content of SU4.

Instructions:

How can the functionality of the linked list class be further improved? Functionality can be improved by adding additional methods for common operations on a linked list needed by your application.

Can you think of any? I can - see my list below.

- `getMax()` returns the largest value found in the linked list. (uses `compareTo`)
- `getMin()` returns the smallest value in the linked list. (uses `compareTo`)
- `equals()` receives a linked list as parameter and compares every object in the calling list with every object in the parameter list to determine equality. (can use `equals` or `compareTo`)
- `getUnique()` returns a list without duplicates for example `(1,2,1,3,5,4,2,1)` returns `(1,2,3,4,5)` (can use `equals` or `compareTo`)
- `isPalindrome()` returns true if the list is a palindrome meaning that it reads the same front to back as back to front for example `(1,2,3,3,2,1)` and `(p,e,e,p)`. (can use `equals` or `compareTo`)
- `getFiltered()` receives a parameter and will return values (in the form of a linked list) larger (or smaller) than the parameter. For example `(1,2,5,4,6,3,7,9)` parameter `(4)` returns `(5,6,7,9)`. (uses `compareTo`)

1. Write one of the above-mentioned methods in the `MyLinkedList` class to perform an operation on the list. (10)
2. Create your own class to test the method with. (2 marks for own class, 5 marks if the class uses `compareTo`). (2-5)
3. Write the test program to test the method extensively. (5)

Make sure your code is unique as we will check for plagiarism. If your code matches that of another student, you will get 0.

Only the linked list as provided on eFundi may be used. If you use the default linked list in Java we will assume that the code was copied from the internet.

Submit only the .java files. Make sure you submit all Java files required for the program to compile and run.