Metropolitan University of Tirana
Data Structures
References in Java

2.1 Unleash the Power of Data Structures: Create Your Own Custom Linked List in Java!

Why?

Creating custom linked list in Java is an important skill for any programmer to have because linked lists are a fundamental data structure that can be used in a wide range of applications. Linked lists provide an efficient and flexible way to store and manipulate collections of data, and can be used to implement more complex data structures such as stacks, queues, and graphs. By learning how to create a custom linked list, programmers can gain a deeper understanding of how data structures work and how to design efficient algorithms for manipulating them.

I'm convinced now. Tell me how!

Mastering the `Node` Class: The Building Block of Linked Lists

- Create a `Node` class with private instance variables for storing the `data` and a reference to the `next` node in the list.
- Define a constructor that takes a `data` value and initializes the node with that `data` and a `null` `next` reference.
- Define `get` and `set` methods for accessing and modifying the `data` and `next` instance variables.

Streamline Your Code with the Power of `LinkedList` Class in Java!

- Create a `LinkedList` class with a private instance variable for storing the `head` node.
- Define a constructor that initializes the `head` node to `null`.
- Define an `addNode` method that takes a data value, creates a `new` node with that data, and adds it to the **end** of the linked list.
- Define a `printList` method that traverses the linked list from the `head` node and prints the data value of each node.
- Define a `contains` method that takes a `data` value and returns a `boolean` indicating whether that value is present in any node of the linked list.
- Define a `findMax` method that returns the maximum data value present in any node of the linked list.
- Define a `findAvg` method that returns the average data value of all nodes in the linked list.

What to submit:

All the code that we develop will be pushed to a GitHub repository. For that reason, make sure that you have (created) a GitHub account. Use `UMT_data_structures` for the repository name.