CSC 220 Data Structures

Program #3

The List Abstract Data Type

Description:

Your objective is to implement the list abstract data type using both an array and a linked list implementation. A template has been provided for you. Rename the template file to "Main.java". To be clear, both the array and linked list classes must implement all methods in the interface provided by the template. Just like in Python, any abstract methods must have a body by the class inheriting from it. For an interface, all methods are abstract and therefore all must be given a body.

Some of the implementation has been done for you. You are required to use the given template and are not allowed to change the existing code provided. Read all JavaDoc comments in the template for further instruction and be sure to follow those comments in your implementation. No example output will be given for this assignment (there is a good reason for this). You will know when you are receiving correct output from your code.

About JavaDocs:

For this assignment, it is not necessary to provide JavaDoc comments on your methods. This is because the JavaDoc comments have already been given in the interface and your methods should follow those comments. The classes are already commented for you as well. Any fields you create, however, should have JavaDoc comments.

Recommendation for this assignment:

I recommend “stubbing” the methods at first. Remember from Living with Cyber that a method stub is a placeholder, where you simply do nothing in the body. This will help you focus on getting one method to work at a time. Some methods require a value to be returned. When stubbing these simply return any hard coded value that matches the datatype. You can change it later when you actually implement the method. Finally, I would strongly recommend you write your own entry point and rename mine (to “main2” or something like that). This will allow you to test each function out one at a time. Only run my entry point once you are sure everything is working. When the program fully works, get rid of your test main function and submit the program.

Submitting your assignment:

Submit only your “Main.java” file on Moodle. Do not submit any .class files.

Rubric:

#	ITEM	POINTS
1	Correctly followed interface for both implementations	5
2	Array class works correctly	10
3	Linked List class works correctly	10
4	Output is correct	10
5	???	5
	TOTAL	**40**

#	PENALTIES	POINTS
1	Doesn't compile	-50%
2	Doesn't execute once compiled (i.e. it crashes)	-25%
3	Late up to 1 day	-25%
4	Late up to 2 days	-50%
5	Late after 2 days	-100%