CS0045 ALGORITHMS AND INFO STRUCTURES APPLICATIONS

Assignment 11

Preparation (the whole project should be done in Netbeans or other IDE)

1.   In Netbeans, create a new project **Assign11** with GroupID **CS0045Fall2021** so that you get a package called **cs0045fall2021.assign11** (see previous handouts for details)

2.   Download **ListInterface.java** and **MyList.java** from Canvas and put them into the **cs0045fall2021\assign11** folder within the **src** folder.

3.   File-Open the two files and add the line **package cs0045fall2021.assign11;**
      to the top of each of them. The two files should now be part of the Source Package

Task

1.   **MyList** is exactly the same as the **LList** class. In this assignment you will add other methods and a **main** to **MyList**.

2.   Add methods to do the following. The methods are not **static** – they will operate on the **this** object and call other methods in **MyList**. You do not need to handle exceptions.

- Swap two items at specified positions in the **this** object
- Reverse the items in the **this** object
- Find the index at which a specified T item first appears in the **this** object
- Find the index at which a specified T item last appears in the **this** object
- Find how many times a specified T item appears in the **this** object
- Remove all the occurrences of a specified T item from the **this** object
- Randomly shuffle the items in the **this** object
- **toString()** method to print all items in the **this** object

ALL METHODS MUST BE WRITTEN FROM SCRATCH – DO NOT USE METHODS IN THE COLLECTIONS FRAMEWORK.

3.   Write a **main** inside **MyList** to do the following. **Print the list after each step** where the list changes.

- Create a **MyList<String>** object
- Add the strings "January", "May", "August", "January", "November", "July", "January", "December" to the list object just created
- Swap the elements at positions 2 and 4 in the list
- Reverse the list
- Print the position at which "January" first appears in the list
- Print the position at which "January" last appears in the list
- Print how many times "January" appears in the list
- Remove all the occurrences of "January" in the list
- Shuffle the list

4.   Take a screenshot of your output.

Turning in the Assignment

Zip up the whole project from the base folder and submit the zipped file and the screenshot. Due by the start of the next class.