GIT Department of Computer Engineering
CSE 222/505
Spring 2014
Homework 03
Lists
Due date: March 23rd 2014 23:59

You will write a Java Interface (named **`GITList`**<E>) that defines the methods listed below.

Method Summary	
void	**`add`**`(int index, E obj)` Add an item at the specified index.
void	**`addFirst`**`(E item)` Insert an object at the beginning of the list.
void	**`addLast`**`(E item)` Insert an object at the end of the list.
E	**`get`**`(int index)` Get the element at position index.
E	**`getFirst`**`()` Get the first element in the list.
E	**`getLast`**`()` Get the last element in the list.
java.util.Iterator<E>	**`iterator`**`()` Return an Iterator to the list
java.util.ListIterator<E>	**`listIterator`**`()` Return a ListIterator to the list
java.util.ListIterator<E>	**`listIterator`**`(int index)` Return a ListIterator that begins at index
boolean	**`addAll`**`(GITList<E> l)` Adds all of the elements in the specified collection to this collection (optional operation).
boolean	**`containsAll`**`(GITList<E> l)` Returns true if this collection contains all of the elements in the specified collection.
boolean	**`removeAll`**`(GITList<E> l)` Removes all of this collection's elements that are also contained in the specified collection (optional operation).
boolean	**`retainAll`**`(GITList<E> l)` Retains only the elements in this collection that are contained in the specified collection (optional operation).

The **`iterator`** and the **`listIterator`** are standard Java Collection interfaces. See the textbook and Java documentation on the web for the details.

You will also write two classes **(`GITLinkedList`** and **`GITArrayList)`** that implements the above interface. **`GITLinkedList`** will use the class **`KWLinkedList`** of the textbook by composition and will delegate all operations to this object as much as possible. Similarly, **`GITArrayList`** will use the class **`KWArrayList`** of the textbook by composition and will delegate all operations to this object as much as

possible. You are NOT allowed to modify **KWArrayList** and **KWLinkedList**, you will only use them. You may write additional classes if that makes your overall system better.

In your submission, include the following in yopur report

1. Problem definition
2. Problem analysis and design
3. Class diagrams and algorithms for all methods
4. Algorithm analysis in terms of asymptotic notations
5. Implementation files
6. Junit tests and test results
7. A few regression tests

Do not forget to follow the homework submission rules. The files for **KWArrayList** and **KWLinkedList**, are attached to this email.