CS 1437 Programming Assignment03 (Fall 2014)

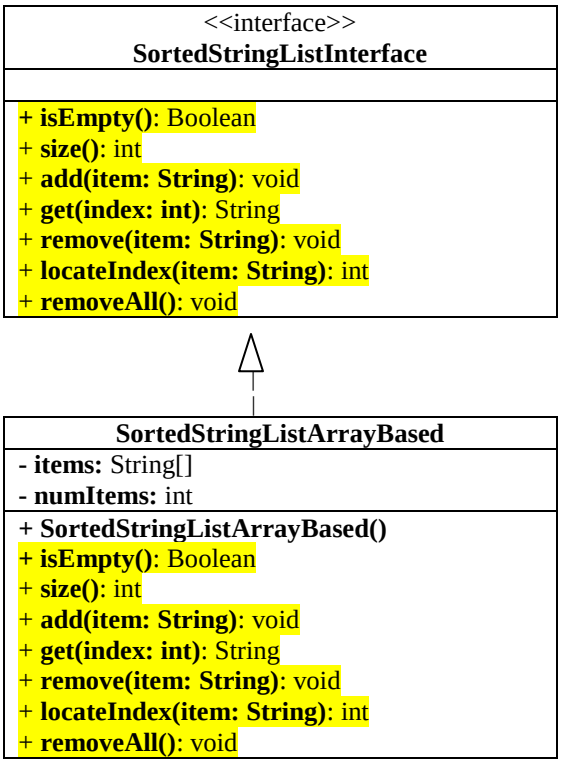
SortedStringListArrayBased

Topics

- Throughout this lab, we want to practice abstract data type (ADT).
- In particular, this lab asks you to implement a SortedStringList class, which is array-based.
- NOTE: Next lab will ask you to implement another SortedStringList class, which will implement the same "SortedStringListInterface". However, it will be reference-based (i.e., singly-linked-list-based).

Activities

- Start with the following supportive files ("ListException.java", "ListIndexOutOfBoundsException.java", "SortedStringListInterface.java", "SortedStringListDriver.java", and "SortedStringListArrayBased.java").
- The first four java files are complete, thus use them as they are provided. You're asked to show your work on the java file, "**SortedStringListArrayBased.java**".
- Remember that in Chapter 4, "ListArrayBased.java" implements "ListInterface". In this lab, "SortedStringListInterface" is analogous to "ListInterface" and "SortedStringListArrayBased.java" implements "SortedStringListInterface" as shown below.



- In class, we discussed an example of interface on shopping list (refer to the textbook and the lecture note). Required implementation description/requirement of each method is given in "SortedStringListArrayBased.java".
- Note that you should keep the sorted (say, non-decreasing) order of items in the array, while adding an item using "add()". Also, make sure you make shift left (or right) properly upon adding (or removing) an item to (or from) the array. Keeping the sorted order in the considered array is the key in this lab.
- Note that index starts from 0, not 1. Therefore, the valid index ranges from 0 to size()-1.

Running Example

```
0. apples
1. black beans
2. bread
3. butter
4. chicken
5. eggs
6. flour
7. milk
8. pecans
9. rice
10. sausage
numItems is now: 11

Adding juice …
item 5 is: eggs
0. apples
1. black beans
2. bread
3. butter
4. chicken
5. eggs
6. flour
7. juice
8. milk
9. pecans
10. rice
11. sausage
numItems is now: 12
```

```
Removing juice…
0. apples
1. black beans
2. bread
3. butter
4. chicken
5. eggs
6. flour
7. milk
8. pecans
9. rice
10. sausage
numItems is now: 11

Adding banana …
0. apples
1. banana
2. black beans
3. bread
4. butter
5. chicken
6. eggs
7. flour
8. milk
9. pecans
10. rice
11. sausage
numItems is now: 12
```

```
Removing sausage…
0. apples
1. banana
2. black beans
3. bread
4. butter
5. chicken
6. eggs
7. flour
8. milk
9. pecans
10. rice
numItems is now: 11

Removing cheese…
0. apples
1. banana
2. black beans
3. bread
4. butter
5. chicken
6. eggs
7. flour
8. milk
9. pecans
10. rice
numItems is now: 11
Press any key to continue …
```

What to Hand in

- Turn in your program, "**SortedStringListArrayBased.java**", via Blackboard.