Shuffler Lab

Shuffler is a program that allows the user to enter a few lines of text or load a text file, shuffle the lines, and then restore the order by dragging and dropping the lines into the desired place. There is a delete button that can be used to delete selected lines.

Experiment with shuffler.jar to see how it works.

Your task is to write the LineList for the Shuffler program.

LineList has one field, an ArrayList of Strings.

LineList has one constructor, a no-args constructor that sets the list of lines to an empty list.

LineList has the following public methods:

* int size() – returns number of lines in list
* String get(int k) – returns the line with the index k from the list
* void add (String line) – appends line at end of list
* String remove(int k) – removes and returns the k-th line from the list.
* void move(int index, int newIndex) – moves the line at index to a new position, at newIndex, shifting the rest of the lines as needed.
* void shuffle() – shuffles the list of lines, so that any line can end up in any position with equal probabilities.

The first four methods call the respective methods of ArrayList. Move and shuffle methods will take a little more thought.

Use the following shuffle algorithm:

1. Set n to the size of the list

2. Randomly select an element from the first n and swap it with the n-th element.

3. Decrement n by one.

4. Repeat steps 2-3 while n>=2.

Write a tester to to test LineList in isolation. Once it works as expected test with GUI classes.