LEC 05

ArrayList Applications

Questions during Class?

Raise hand or send here

sli.do #cse122

BEFORE WE START

Talk to your neighbors:

Any weekend plans?

Music: 122 26Wi Lecture Tunes

Instructor: Adrian Salguero

TAs:

Ava	Dalton	Neal	Shreyank
Blake R	Dani	Neha	Sthiti
Blake P	David	Nicolae	Sushma
Cady	Diya	Nicole	Suyash
Caleb	Hanna	Rio	TJ
Cole	Ivy	Rohan	Wesley
Colin	Mahima	Saachi	Yang
Connor	Medha	Shreya	

Lecture Outline

- Announcements
- Warm Up
- ArrayList Extended Application

Announcements

- C0 grades and R0 out yesterday
  - Now that you have your first set of grades, review the Course Grades section of the syllabus to understand how they factor into your grade at the end of the quarter!
  - See Resubmission page and Ed post for R0 logistics
- Creative Assignment 1 (C1) out later today!
  - Focused on `ArrayLists`
  - Due next Thursday, Jan 29th by 11:59pm PT
- First quiz in section on Tuesday Jan 27th
  - Practice Quiz 0 released!
- Reminder: Section participation in 11+ sections → Extra resub!
  - No need to do anything; TAs will track on Gradescope

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- **Warm Up**
- ArrayList Extended Application

Edge Cases! (And Testing)

When writing a method, especially one that takes input of some kind (e.g., parameters, user input, a Scanner with input) it's good to think carefully about what assumptions you can make (or cannot make) about this input.

Edge case: A scenario that is uncommon but possible, especially at the "edge" of a parameter's valid range.

❓ What happens if the user passes a negative number to `moveDown`?

❓ What happens if the user passes a number larger than the length of the list to `moveDown`?

More testing tips on the course website's Resources page!

ArrayList Methods

Method	Description
`add(type element)`	Adds *element* to the ***end*** of the `ArrayList`
`add(int index, type element)`	Adds *element* to the specified ***index*** in the `ArrayList`
`size()`	Returns the number of elements in the `ArrayList`
`contains(type element)`	Returns `true` if *element* is contained in the `ArrayList`, `false` otherwise
`get(int index)`	Returns the element at *index* in the `ArrayList`
`remove(int index)`	Removes the element at *index* from the `ArrayList` and returns the removed element.
`indexOf(type element)`	Returns the index of *element* in the `ArrayList`; returns -1 if the *element* doesn't exist in the `ArrayList`
`set(int index, type element)`	Sets the element at *index* to the given *element* and returns the old value

addAll

Write a method called `addAll` that accepts two `ArrayLists` of Characters, `list1` and `list2` , and an integer `location` as parameters and inserts **all** of the elements from `list2` into `list1` at the specified `location`.

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- **ArrayList Extended Application**

Bakery Favorites

We will write a program called `BakeryFavorites.java` that manages a list of favorite bakeries for a user (using an `ArrayList`) and allows the user to perform various different operations on their stored list of favorite bakeries.

Key skills used:

- User Interaction (UI) loop
- Iterative development strategies
- Functional decomposition
- Practice with ArrayList methods!

Bakery Favorites: Operations

- Load a list of favorites in from a file provided by the user.
- Compare the stored list of favorites to another list of favorites provided by the user in another file.
- Report the top *n* favorites according to the list, where the user can specify *n*.
- Move a specific favorite down in the list.
- Add a list of favorites in a user-provided file to the stored list of favorites at a specified location.
- Save the current list of favorites to a file provided by the user.

Bakery Favorites: Development Strategy

- Set up the main scaffold code
- Menu loop
- Develop each operation, one at a time

You'll see a similar development strategy in Creative Project 1's specification — we recommend you follow it!

Bakery Favorites: Operations

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- Move
- Add a user-provided file to the stored list of favorite ecified location.
- Save the current list of favorites to a file provided by the user.

ALREADY DONE!
See In-Class 4