

CISC 3115

Lists and Arrays: Exercises

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Exercises

- Deleting elements from lists and measuring computation time
- Use iterator to search and update elements
- Sorting and searching lists and measuring computation time

Deleting elements from lists and measuring computation time

- Create a directory for this exercise
- Add methods to delete the first element from an ArrayList and a LinkedList similar to the “insert” element methods discussed in class and in the example code
- Revise the main method to invoke your method.
- Run the program, and compare the time used to delete many times from an ArrayList and that from a LinkedList.
- Document your observation as a comment in the program

Use iterator to search and update elements

- Create a directory for this exercise
- Copy the example program TestUpdateLisitObjects to the directory
- Add a method to TestListStudent class that replace every student whose first name starting with “J” to “John” via a ListIterator.
- Revise the main method to invoke your method with both an ArrayList and a LinkedList

Sorting and searching lists and arrays and measuring time

- Use Comparator and Collections, and follow the steps below
 - Create a directory for this exercise
 - Sort the lists (ArrayList and LinkedList) and an array in descending order by student's last name
 - Use binary search to find a student given the student's last name
 - Write a generic method to measure sorting for either an ArrayList or a LinkedList
 - Write a method to measure sorting time for an array
 - Write a method to measure search time for a large number of searches in either an ArrayList or a LinkedList
 - Write a method to measure search time for a large number of searches in an array
 - Revise the main method to invoke your method to show and compare the sorting and searching times.