

Programming Homework Assignment #3

Due Date: Tuesday, May 16, 11:55 PM

Upload the source files (.java files) with output (copied and pasted to the end of the main file) ZIPPED into one .zip file (see Catalyst under Week 6 for where to submit)

Problem:

Write a Java program which changes the partial SortedLList2 class (SORTED doubly linked list) as given in the HW3_JavaCodeFile in Catalyst (next to this assignment). ONLY change where **highlighted** in the HW3_JavaCodeFile (NOTE: if you can't see the highlights, try to open Word, then open in Word, OR ask for a PDF file, but don't copy and paste from the PDF file)! Also, use the Date class given in the HW3_JavaCodefile, but complete the **compareTo** method as described in the code file. For more examples of compareTo and the Comparable interface, see the Comparable - compareTo Example file on Catalyst (next to this assignment).

Write main so it has a SortedLList2<Date> local variable. Open an input file the same way you did in Prog. HW#1 (using the openInputFile method). If it doesn't open, end the program. If it opens, assign a new instance of a SortedLList2<Date> to the main variable, and read the file which has several sets of: 3 ints (for month, day and year in the file as MM DD YYYY). For each set of input data, (in a loop) instantiate a new default Date and assign to a local Date variable. Then call its setDate() method passing the 3 ints. If setDate returns true, insert it into the SortedLList2 otherwise, display a message on the screen that an invalid date was read (and display it). (Reading from the file could be a separate method.)

In main, call a SEPARATE static method that YOU write (in the main driver class) to test the SortedLList2<Date> (so it must be a parameter). In this method, call the SortedLList2's display() method AND the displayBackwards() method (please display appropriate descriptions first). Also, test the SortedLList2's **contains(T)** and then **remove(T)** (TEST THESE IN SEPARATE IF STATEMENTS), passing a NEW Date with the same month, day and year as in list's LAST node (so call the getEntry() method passing the length of the list to getEntry(), but DON'T pass the return value of getEntry to the contains(T) or remove(T) method!), displaying the messages that indicate if contains returns true or false (include the Date you're searching for), and if remove returns true or false (include the Date you're tried to remove). Then test **contains(T)** passing a default Date, displaying the messages that indicate if contains returns true or false AND try to remove it (again displaying the messages the indicate if it returned true or false). Call the display and displayBackwards methods again.

Last in main, call the testSortedLList2 method given in the HW3_JavaCodeFile.

See test runs on Catalyst. Test your programs using the same test values to see if you get the same results. Turn in using the HW3 Input.txt file.

Extra Credit Problems (due the last day of the quarter!): (Data Structures and Abstractions with Java by Carrano) 4th Ed. p. 424 #6 (top of page);
Also THIS HW#3 but making the list a CIRCULAR DOUBLY LINKED LIST but WITHOUT dummy head and tail nodes.