

Northern Michigan University (Marquette Co, MI)

CS 422-01-25W: Algorithms: Design And Analysis

Program 1

Due: Wednesday 29 January 2025 9:00 A.M. EST

Create a folder called “PG1” in the top level of your CS422-01-25W folder. Place all files pertaining to this assignment into the top level of your PG1 folder. Place a (possibly empty) file called “DONE” into this folder when you are ready to have your programs graded. The only files you need to turn in are the .java files. Please don't turn in any files other than these!!

Write the following program in Java:

Your program should repeatedly prompt the user to enter a string. This should continue the user enters a blank line. (The blank line is not considered one of the input strings. It just tells the program that the user is done entering strings.) The program should then print out the string that is dead center in alphabetical order. If an even number of strings were entered, then the program should print out both of the center strings in alphabetical order. (If no strings were entered, the program should print some sort of message indicating this.)

Here's the thing. You must use a linked list, as defined in class. Your program should contain no loops; all repeated work must be handled with recursion. Your program should repeatedly find and remove the smallest element from the list, and then the largest, and should keep doing this until two nodes or fewer remain. What remains will, of course, be the middle elements.

All class and object variables must be private, as always.

Comment your program well!

For example:

```
Enter a string:  MY
Enter a string:  DOG
Enter a string:  HAS
Enter a string:  FLEAS
Enter a string:
```

```
Your middle strings are
FLEAS
and
HAS
```