

CS 2213-001 Advanced Programming

Instructor [Dr. Turgay Korkmaz](#)

Homework 8

Due date: check BB

!!!! NO LATE HOMEWORK WILL BE ACCEPTED !!!

Total 5 points

(Double Linked List of Blocks, Abstract Data Type - Library)

Programming Exercise 13 from Chapter 9... “The biggest problem with using a doubly linked list to represent editor buffer is that it is terribly inefficient in terms of space. With two pointers in each cell....”

First get all the files under 09-Efficiency-and-ADTs from the class web page (follow the link “programs from the textbook” and then go to 09-Efficiency-and-ADTs). Compile and run editor.c program with different implementation of buffer ADT, like in recitation.

Then, **you are asked to provide a new implementation (say bufferdllb.c) as described in Programming Exercise 13.** Note that buffer.h will be the same. Then compile editor.c with your new implementation (bufferdllb.c) and thoroughly test your implementation....

As always, make sure you release (free) the dynamically allocated memories if you allocate any memory in your programs. So, before submitting your program, run it with `valgrind` to see if there is any memory leakage... Also if you need to debug your program, compile your programs with `-g` option and then run it with `gdb` and/or `ddd`.

What to return: !!!! NO LATE HOMEWORK WILL BE ACCEPTED !!!

1. Create a directory, say LASTNAME_hw8, and do all your work under that directory.
2. You will get different implementation of bufferADT library and client/driver program from the textbook, and use driver program with a new implementation of buffer ADT.
3. To compile the library and driver program, you must have a `Makefile` and use `“make.”`
4. After compiling, run your program a few times with different input values and save the output (using script) into `output.txt` file. So you will have around 6-7 files in your LASTNAME_hw8 directory.
5. Go to parent directory of LASTNAME_hw8, and use

```
> tar -cf LASTNAME_hw8.tar LASTNAME_hw8
```

This will create a new file called LASTNAME_hw7.tar and it contains all of your files. So just submit this .tar file.

6. Go to WebCT (BB), and just submit LASTNAME_hw8.tar as **attachment** before the deadline. DO NOT submit other .h or .c files individually.

/ Don't forget to include comments about the problem, yourself and each major step in your program! */*

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You must submit your work using Blackboard Learn and respect the following rules:

- 1) All assignments must be submitted as either a zip or tar archive file unless it is a single pdf file.
 - 2) Assignments must include all source code.
 - 3) Assignments must include an output.txt file which demonstrates the final test output run by the student.
 - 4) If your assignment does not run/compile, the output.txt file should include an explanation of what was accomplished, what the error message was that prevented the student from finishing the assignment and what the student BELIEVES to be the underlying cause of the error.
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