Advanced Programming
COEN 11

Lab 8

Lab 8

Extend your program for lab 7

- Include an auto-saving thread to save the info from the list(s) to a binary file every 15 seconds.

Your thread is in a loop forever.

- It sleeps for 15 seconds
- When it wakes up, it opens the file and traverses the list, writing the info to the file.
- Then closes the files and sleeps again.

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The list and auto-saved file are shared

- Use a lock!
  - Lock whenever you change the list or handle the list in the auto-save thread/function.
  - Also, lock when you handle (read or write) the auto-saved file.

Cancel the auto-saving thread before you save the list to the text file at the end.

- Use the lock to guarantee that you are not in the middle of saving the data to the temporary file when you cancel the thread.

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File Requirements

- The name of the auto-saved file should be an argument to the program (argv[2]).
- The auto-saved file should be binary. Use fwrite to write each node to the file (from lab 7)
- Add an option to your program and create a new function to read the binary file (with fread into a temp node, like in lab 7) and show the contents on the screen.
  - Don’t forget to lock when reading the file!

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File Requirements

- The file written at the end (argv[1], option zero) and read in the beginning will be a text file
  - Reuse the functions from lab 6

Lab 8

To receive full credit

- Pre-lab (10%)
  - List of places where you need a lock
- Demo (30%)
  - Show the TA
    - Lists of different sizes
    - Add someone
    - Check the binary file
    - Add someone
    - Check the binary file again
- Submit to Camino (60%)

Lab 8

Extra Credit (10 points on the 2nd midterm)

- Use doubly-linked lists
- Add two options to show the lists backwards
  - One starts at the tail and follow the prev pointers
  - One starts at the head and do it recursively