COEN 11 Lab 9

Steps

1. Open up Terminal and connect to the Linux computers:
   ssh -l username linux.dc.engr.scu.edu
2. Go to COEN 11 directory: ***cd coen11***
3. Copy the contents of lab2 into a new file: ***cp lab8.c lab9.c***
4. Edit lab3: ***vi lab9.c***
5. Compile the file: ***gcc -o lab9 -pthread lab9.c***
6. To create an empty file: ***touch data.txt***
7. Test your file: ***./lab9 data.txt autosave.bin***
8. After exiting your program, check the file contents: ***cat data.txt***

Requirements

Use the pthread library to use thread functions in C, and create a global thread.

The binary file should be passed as the second command line argument, hence stored in argv[2]. Also, the code should check whether both the file names are provided.

Two new functions:

void *auto_save (void *) ~ runs an infinite loop, and keeps saving the list contents into the binary file every 15 seconds, using 'fwrite'. Print a small message on console to demonstrate that the function runs every 15 seconds. Use the sleep() function to add the 15 seconds sleep for the thread code.

void read_auto_saved (char *) ~ takes the second file name as function argument, reads this binary file using 'fread', and then prints the content of this file on the console.

Create a new menu option:

7 ~ calls the function 'read_auto_saved' to read the auto-saved binary file and display the contents of the file.

Other functions:

save_all ~ Make sure to cancel the auto-save thread before saving into the text file.

Use the correct fopen modes while reading and writing the binary file.

Make sure to lock and unlock the file mutex lock wherever the list is modified and the new functions.

When Submitting the Code...

Add comment at the top of the page with…
- Your name
- Course title
- Lab number
- Lab time and date

Make sure there is proper code alignment and comments.

```
/* Emma Allegrucci
 * COEN 10
 * Lab 5
 * Monday 2:15pm
 */
```

Helpful Resources

*** "The C Programming Language, 2nd Edition" ***

C: https://devdocs.io/c/

Terminal commands:
https://cheatography.com/davechild/cheat-sheets/linux-command-line/

Vim commands: https://vim.rtorr.com/

Threads: https://www.geeksforgeeks.org/multithreading-c-2/