

Final assignment: Text Editor

TINBES02-2

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





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1 The assignment



For your final assignment you will be writing a *text editor* for your operating system. This assignment makes brings together all the assignments you've made thus far. You'll need to use "memory.h", "ramfs.h" and integrate your editor with the command line. There's a few requirements your editor must meet:

Your editor should at least be able to:

- Provide a full-screen/visual editing environment
- Support an 80×25 character text file (this means horizontal and vertical scrolling is not required)
- Add an option to your CLI to start your text editor
- Read and write files from *ramfs* supplied using a command line argument
- Handle  (Backspace) and  (Delete)
- Handle the left and right arrow keys to move around and insert text on other locations besides at the end of the file. Wrap around to the start of the next line when the last column is reached. Also wrap around to the end of the previous line when the first column is reached.
- Handle  +  to quit the editor and return to the shell
- Handle  +  to save files to ramfs
- Insert a null terminator '\0' at the end of a file




Extra functionality is always rewarded provided it is interesting enough, for some inspiration see Section 1.1.

I won't throw you all the way in at the deep end. Some tips before you start:

- Track the offset of the cursor in the file in one dimension (from the start of the file to the current position). You can calculate the column offset by counting the number of newline characters ('\n').
- Separate your code into a keyboard handler and a drawing function to avoid code duplication and spaghetti code
- It's okay to redraw the entire buffer on every key press, the overhead is not as big as you think. You'll be making things very complicated for yourself if you don't do this, especially when implementing  and .
- Refer to the *I/O assignment manual* for I/O functions, escape codes and escape sequences

1.1 Bonus points

Here's some ideas for extra functionality in your text editor:

- Handle  (Tab),  and 
- Handle the up and down arrow keys to move around vertically
- Add a *status line* to show the current line, column, the number of characters, lines, etc.
- Implement *line breaking* and/or *horizontal scrolling*
- Implement a *find* feature to search for a substring
- Implement *modal editing* (like in VIM)
- Implement *multiple buffers* to open more than one file at once
- Implement *vertical scrolling*