

Operating Systems

CMSC 422 and MSCS 515

*i*Project Four – DRAFT 1

Starting with and including all functionality of *i*Project three, add new features as specified herein.

OS Functional Requirements

- Add kernel-level shell commands for the following disk operations: [everything is required]
 - `create filename`
 - Create the file *filename*.
 - Display a message denoting success or failure.
 - `read filename bytes`
 - Read *bytes* bytes from file *filename*.
 - Display the bytes read or an error message (if there was an error).
 - `write filename data`
 - Write the *data* string to file *filename*.
 - Display a message denoting success or failure.
 - `delete filename`
 - Remove file *filename* from storage.
 - Display a message denoting success or failure.
 - `format`
 - Initialize all blocks in all sectors in all tracks of your personal Marist Student Database Operating System (MSDOS) user space.

Source Code Requirements

- Develop a File System Device Driver (fsDD) for all of the functional requirements noted above.
 - Load the fsDD in a similar manner to how you load the keyboard device driver.
 - Your fsDD should insulate (and encapsulate) the implementation of the common kernel-level I/O operations (noted above) from the byte-level details of your individual blocks on the (database-backed and web-accessible) “disk”.
 - You should be able to swap in fsDDs from your classmates and access their disk content with no other modifications to your code. Try this; as I’m going to when I grade these. Make sure it works.

Hints

- Use the web services on our web site (at www.3nfconsulting.com/msdos.asm) to test and validate your concepts.
- Use the Javascript code on our web site (at www.3nfconsulting.com/students/os/MSDOSjsonTest.html) as a template for your own low-level operations for `getBlock` and `setBlock`.
- Continue to (constantly) refactor. Your code should improve as your understanding does.

Style, Art, and Science Requirements

- Your code must separate structure from presentation, be professionally formatted, and use and demonstrate best practices
- Remember the value of comments and expressive identifier names and how much their presence and quality affect my grading.