CSE325 File System Implementation

Assignment #7

Design and Implement a File System Manager

Design document due: April 19, 2012/4:00pm
Implementation due: April 26, 2012/4:00pm

You are to work in groups of 2 or 3, with names of group members listed on the design document.

Functionality

You are to design a file system manager. You will develop a design document that will consist of at least the following information:

- The high-level state diagram of the filesystem to be implemented
- A high-level flow diagram of the filesystem manager
- A description of each possible process state of a disk block
- The file control block structure (FCB)
- Descriptions of all functions within the file system manager
- Any design decisions you made (including things like block/frame size, elements of the FCB, etc)

Constraints on your design:

- Single-core system
- No system calls are allowed in your implementation of the process manager
- System calls are allowed in the testing interface portion of this assignment
- Filesystem size will be 256 MB
- Storage device is always available to the OS (hardwired RAM disk)
- You do not need to allow for bad blocks in the device. **Extra Credit**: Providing design, implementation, and testing for bad blocks (up to 5 points)
- The file structure for this storage is flat, there are no directories. **Extra Credit**: Design, implement, and test a directory structure and add appropriate command(s) to the test interface (up to 10 points)
- Other opportunities for extra credit will be identified in the test interface document.
- You will have to write a hardware stub that implements the device controller functionality. This stub can contain system calls to enable it to simulate the hardware.

Your design need not be approved before you perform the implementation. If you turn in your design early, it can be reviewed and comments returned early.

Assignment Deliverables

1. Design document as defined above
2. Code implementing the design
3. Test set of commands that exercises your code
4. Captured results of your test set