

Logging

Describe a scenario which can leave the file system corrupted (assume no logging).

How do you add the log region to the file system? (hint: mkfs.c)

Let's call the metadata for the log region the Log Header. What type of metadata needs to be stored in the Log Header?

How do we synchronize the Log Header?

When should we acquire and release the log lock?

What's the point of the commit flag for the log?

Logging

What's the difference between a REDO and UNDO log?
What are some of the trade-offs between them?

For the following cases, describe what should happen on reboot, and how the state of the file system will look to the user after reboot:

- The system crashes during writes to the log region.
- The system crashes after the log has been written to disk and is committed.
- The system crashes after the log has been written to disk, but the commit bit has not been set.

Are there any other cases to consider?

Imagine the user makes a write system call that adds 1 block to a file and the system does not crash.

Assume REDO logging.

On a successful write, how many times was `bwrite` called?