

Assignment 2.3 Write Up

I fixed my reference monitor in many ways.

The `writeln()` was only appending to the file. I mean if someone did `file.writeln("hi", 2)` and let's say there were 5 characters in the file, "hi" would be written at the end. That was incorrect. So technically my file wasn't doing overwrites, it was only appending. I corrected this to write at the correct offset. A subsequent valid `writeln` made the previous `writeln` permanent to the file.

I put in some extra checks to make sure `undo` would not `undo` after the file closed, (although `undo` wasn't originally undoing after the file closed anyway). I made sure that if `undo` was called multiple times in succession that only the first `undo` would have an effect. I made sure nothing was "undone" if there was no pending data to "undo".

I made sure that if the file was created and opened, written to, closed, then opened again, it would maintain the size that it had right before it was closed. Originally, when a file was reopened, its' size was incorrectly being reset to 0 and if someone tried to write at an offset other than 0 when the file was reopened, they would get a past the end of file error. By implementing my solution, I ensured that if a file was reopened, it remembered the length of the file, so when a valid offset was given upon reopen, there was no seek past end of file error.

I updated the file size properly and returned a seek past end of file error only if the offset was greater than or equal to the `filesize + 1`.

Lastly, I implemented locks to achieve synchronization between two threads that may be accessing the same instance of the `LPFile` class. The two locks were called `lock` and `close_lock`.