

Systems Programming

Assignment 1

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1. File Redirection

(a) Redirect “standard input” to “infile”.

Redirect “standard error” to “standard output”.

Redirect “standard output” to “outfile”.

(b) `dup2(fd1, 0);`

`dup2(1, 2);`

`dup2(fd2, 1);`

2. Atomic Operation

(a) `write_to_fd` should be an atomic operation. If the process gets context switch by the CPU after using `lseek`, other process using the same file descriptor may write to the same shared file and may change the content of the file. However, the previous process won't be aware of the changes of the file.

(b) `write_to_fn` don't have to be an atomic operation because the file is opened inside the function. The reference of the file descriptor is only accessible in this function, as a result, other process won't be able to make changes on the file offset stored inside the open file table.