Lecture Assignment 6

Due date: 24-Oct-2023

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Select two questions based on your preference!

Why would a program want multiple file descriptors to the same file or device using dup() or dup2() system calls?

A program would want multiple file descriptors to the same file or device using dup() or dup2() system calls because the commands allow for efficient I/O management. Some programs may duplicate file descriptors to have one descriptor for reading and one for writing. Moreover, you can prevent data loss by using duplicated file descriptors. For example, if one process writes to the file while another is reading from it, having multiple file descriptors can ensure that the data is not mixed up.

When using read() or write() system calls, we need to specify a buffer. Should we select large buffer or small? What is the optimum size of buffer based on the underlying task?

When specifying a buffer for the read() or write() system calls, we should select a buffer depending on the requirements since there is no one-size-fits-all buffer. The buffer size depends on memory constraints, system characteristics, and application requirements. For large buffer sizes, we would want them when we want to maximize data transfer efficiency, throughput is a priority, and where the system has sufficient memory to accommodate the larger buffers. On the other hand, for small buffer sizes, we want to use them in scenarios where minimizing latency, conserving memory, or meeting specific application requirements are a priority.