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Operating Systems File Accessing Methods

All operating systems contain organized file structure and hierarchy ready to accept new data, modify existing data, and delete data or release memory allocation at the drop of a hat.

Currently, there are 3 most popular ways that an operating system can access file.

Firstly, sequential access is the simplest where file is organized in order. Editor and program compiler are the clientele of sequential access where a read operation puts the pointer at the beginning of a file block and a write operation puts the pointer at the end of the file block. This method is ideally used for backup and is less prone to corruption as well as being efficient at reading large files. However, when data is not stored in a linear or consecutive fashion, the efficiency decrease significantly and if data must be modified or added, it comes at a costly price. Therefore, applications requiring frequent updates aren't well suited to sequential access.

Secondly, unlike sequential access, direct access is comparatively much faster without having to traverse from the beginning of a file block and instead directly access the data from specific location in the memory. Records are stored in a random fashion without regard to order but comes at the cost of high overhead to store address tables to allow pointers to access data.

Lastly, index sequential method is built on top of the previous method by maintaining an index table to control pointers to access the data directly. This allows for efficient searching and

reduce access time. The disadvantages are clear considering index maintenance, required additional storage and overhead.

Works Cited

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