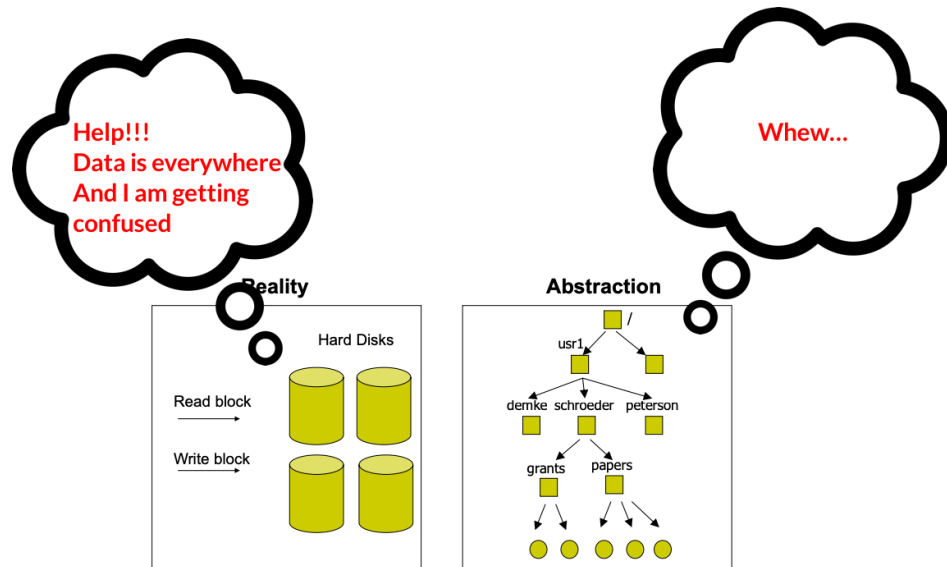# CSC369 Week 8 Notes

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- File Systems

  - Is the part of operating system dealing with files [2]
  - Controls how data is stored and retrieved. [1]
    * Without a file system, data placed in a storage medium is one large body of data with no way to tell where it stops and the next begins

Refernces:

1) Wikipedia: File Systems, link

2) Tanebaum AS, Boss H. 2015. Modern Operating Systems. 4th Edition. New Jersy: Pearson Education, Inc.

- File Concept

  - Files

* Are logical units of information created by processes [1]
* Is named collection of data with some attributes
  1. Name
  2. Owner
  3. Location
  4. Size
  5. Protection
  6. Creation Time
  7. Time of Last Access

Refernces:

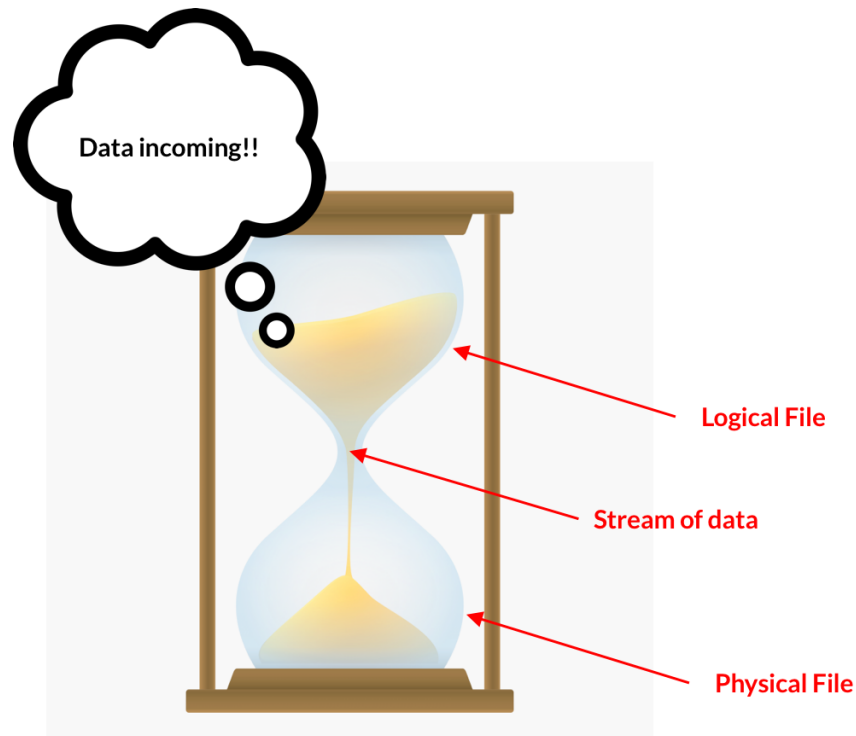1) Tanebaum AS, Boss H. 2015. Modern Operating Systems. 4th Edition. New Jersy: Pearson Education, Inc.

- Directories

  - Are file system files for maintaining the structure of the file system [1]
  - Serves multiple purposes
    * *All* → Stores information about files (owner, permission, etc)
    * *Users* → provides a structured way to organize files
    * *File System* → provides a convinent naming interface that allows the implementation to separate **logical file** organization from **physical file** placement on the disk

      · **Logical files:** Is a channel that connects the program to the physical file (Stream) [2]
      · **Physical files:** A collection of bits stored in the secondary storage [2]

      Example:

      FILE* output;
      output = fopen("sample.txt", "w");

      Here, output is the logical file and sample.txt is the physical file

Refernces:

1) Tanebaum AS, Boss H. 2015. Modern Operating Systems. 4th Edition. New Jersy: Pearson Education, Inc.

2) Kumar, S. (2010). *File structures* [PowerPoint Slides]. Slide Share link

- Symbolic vs Hard Links
    - **Inode**
        * Is a database structure in a UNIX-style file system that describes a file system object such as a file or a directory [1]
        * Contains disk block location of the object's data [1]
        * Is a numerical equivalent of a full address [2]
    - **Symbolic Link**
    - **Hard Link**
        *

Refernces:

1) Wikipedia: inode, link

2) Kumar, S. (2010). *File structures* [PowerPoint Slides]. Slide Share link

- Protection

- Unix Inodes and Path Search

- File Buffer Cache