Table of Contents

Directory

- A place where a set of file will be stored.
- Folder that contains detail about files, files size, and time when they are created and last modified.

Directory Operations

1. Create a file
2. Delete a file
3. Search a file
4. List a directory
5. Rename a directory
6. Traverse the file system

Path Names

1. Absolute Path Names
2. Relative Path Names

Absolute Path Names

It specifies the location of a file or directory from the root directory(/).
To write an absolute path-name:

- Start at the root directory (/) and work down.
- Write a slash (/) after every directory name (last one is optional)
- Current working directory: /home/user
- Absolute path: /home/user/example.txt

Relative Path Name

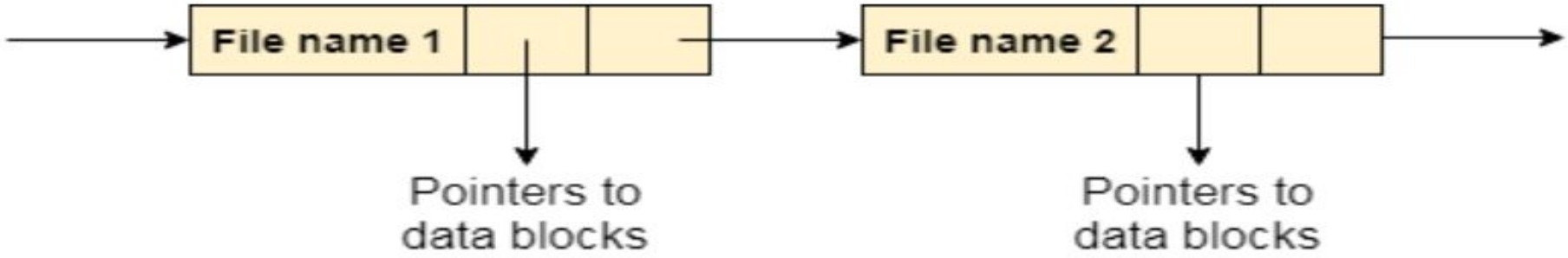
- It defines the path related to the present working directly(pwd).
- It starts at your current directory and **never starts with a / .**
- Current working directory: /home/user
- Relative path: ../example.txt

Directory Implementation

1. Linear List
2. Hash Table

Linear List

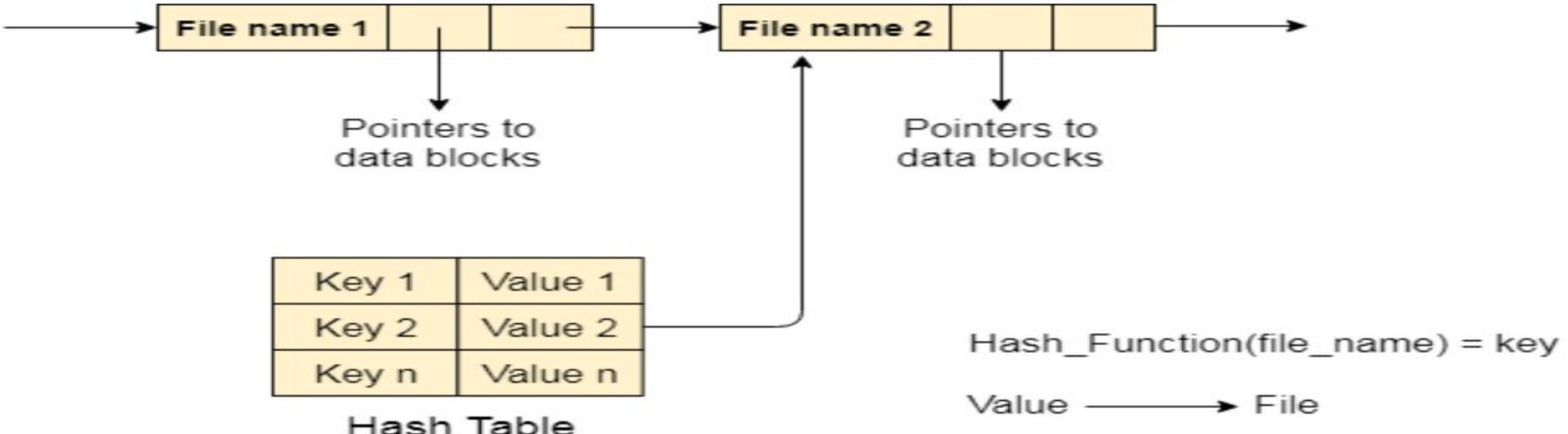
- In this algorithm, all the files in a directory are maintained as singly linked list.
- searching for a unique name is a big concern because traversing the whole list takes time.
- The list needs to be traversed in case of every operation on the files therefore the systems become inefficient.



Linear List

Hash Table

- Introduced to overcome the drawback of linear list.
- A key-value pair for each file in the directory gets generated and stored in the hash table.
- Searching becomes efficient because only hash table entries are checked using key.



Shared Files

- Refers to a file that can be accessed by multiple processes.
- OS provides mechanisms such as file locking and access permissions.
- Used for communication, data storage, and synchronization between processes.
- Examples: database files, configuration files, and log files.
- Increase productivity and collaboration in a system.