6.1 File — Concepts, Attributes, Operations, types and File System Structure.

6.1 File

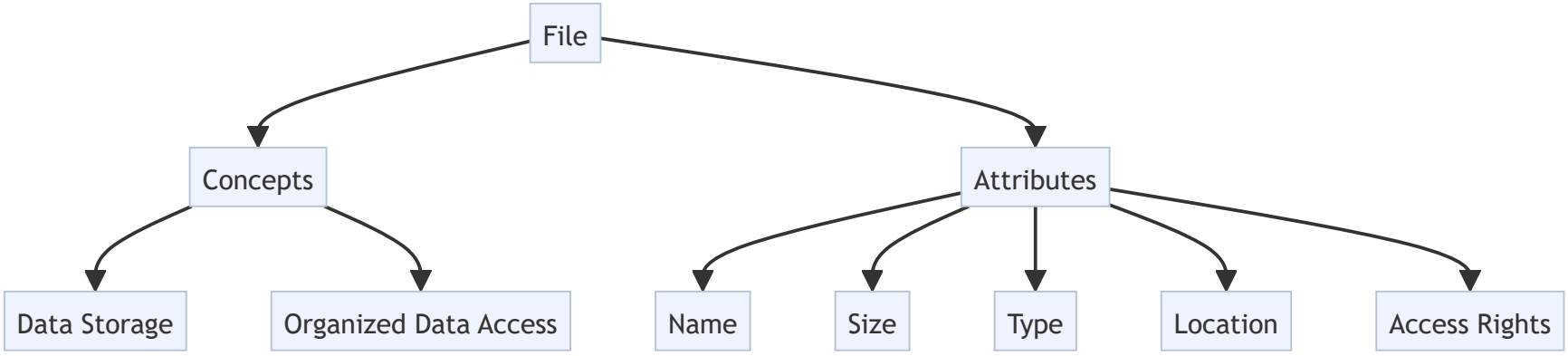
Concepts

Working, Simple Usage, Explanation:

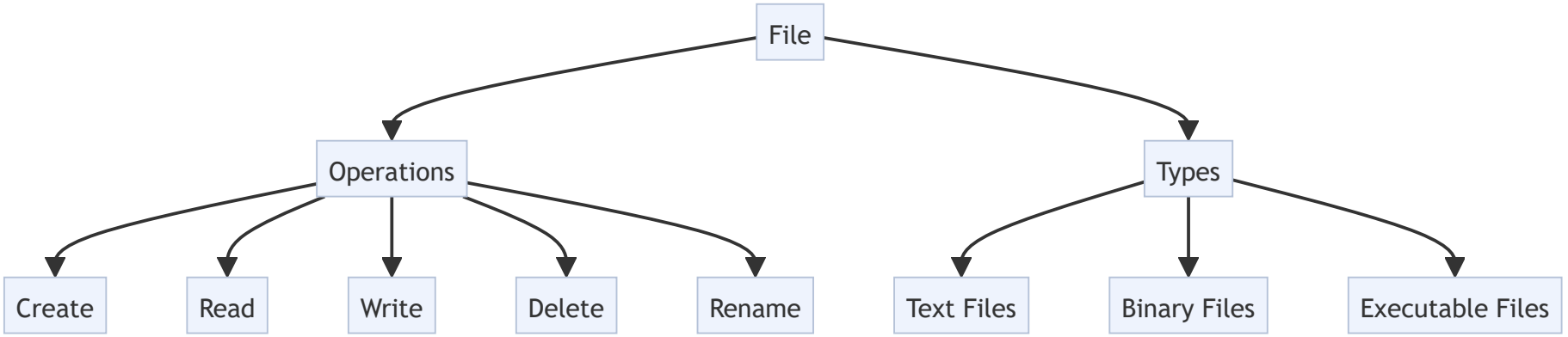
A file is a collection of related data or information that is stored on a storage device. Files are used to store data in an organized manner, allowing for easy retrieval and manipulation. They are fundamental units of storage in an operating system and are managed by the file system.

Diagram

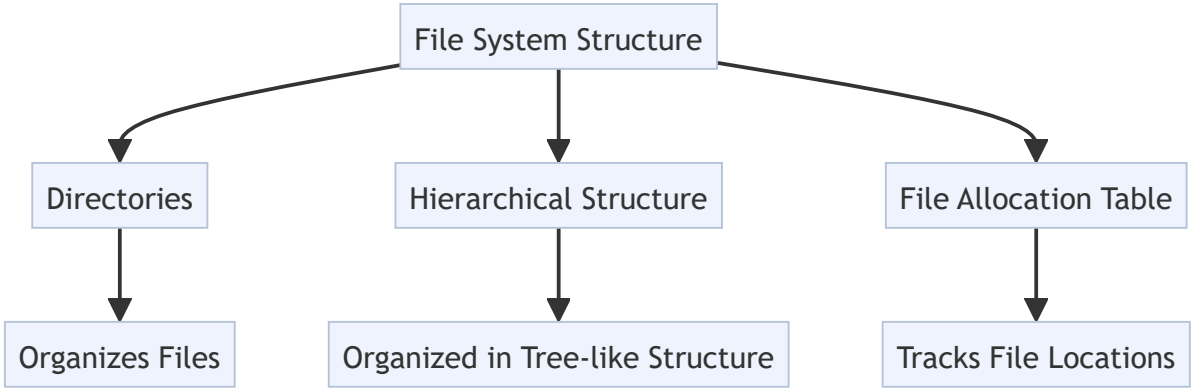
1. File Concepts and Attributes



2. File Operations and Types



3. File System Structure



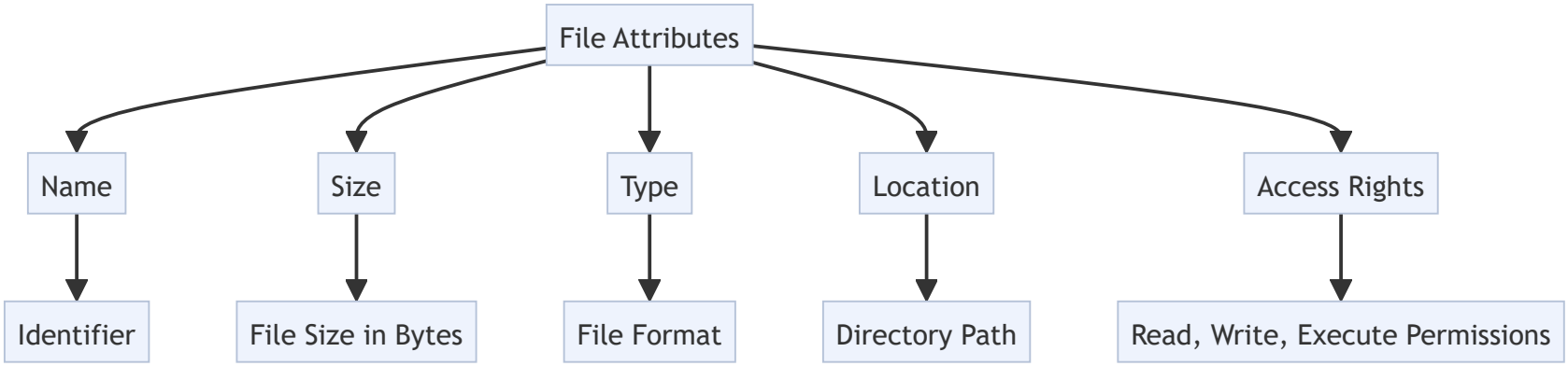
Attributes

Explanation:
File attributes are metadata that describe the characteristics of a file. Common attributes include:

- **Name:** The name of the file.
- **Size:** The size of the file in bytes.
- **Type:** The type of file, e.g., text, binary.
- **Location:** The directory or path where the file is stored.

- **Access Rights:** Permissions that determine who can read, write, or execute the file.

Diagram

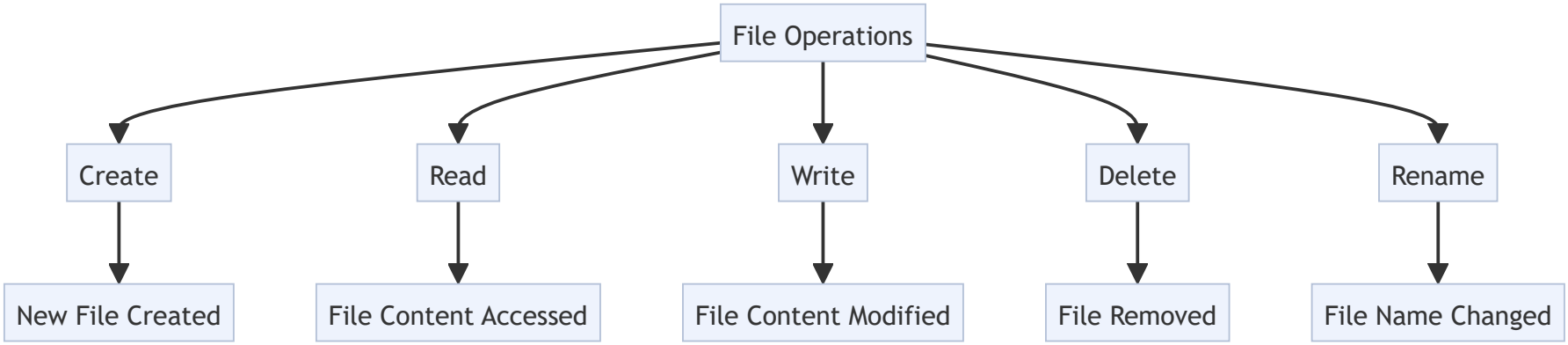


Operations

Explanation:
File operations are actions performed on files to manage their content and attributes. Common operations include:

- **Create:** Establishing a new file.
- **Read:** Accessing the content of a file.
- **Write:** Modifying or adding content to a file.
- **Delete:** Removing a file from storage.
- **Rename:** Changing the name of a file.

Diagram

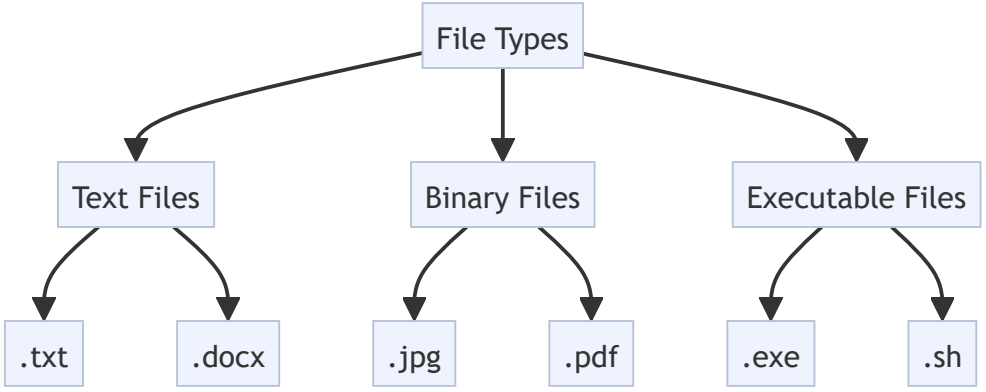


Types

Explanation:
Files can be categorized based on their content and usage. Common types include:

- **Text Files:** Contain human-readable text, e.g., `.txt`, `.docx`.
- **Binary Files:** Contain data in binary format, e.g., `.jpg`, `.pdf`.
- **Executable Files:** Contain code that can be executed by the system, e.g., `.exe`, `.sh`.

Diagram



File System Structure

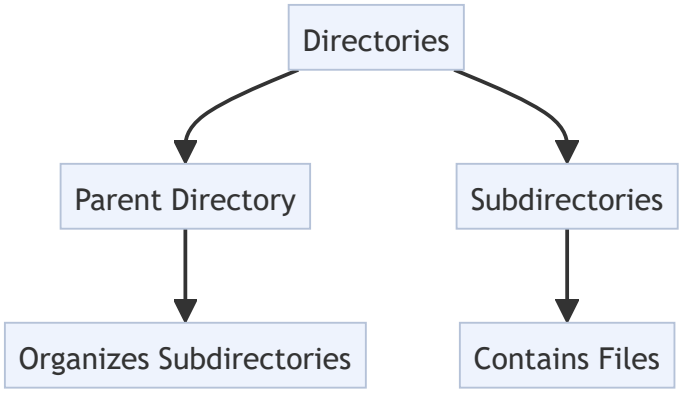
Explanation:

The file system structure defines how files are organized and managed on a storage device. Key components include:

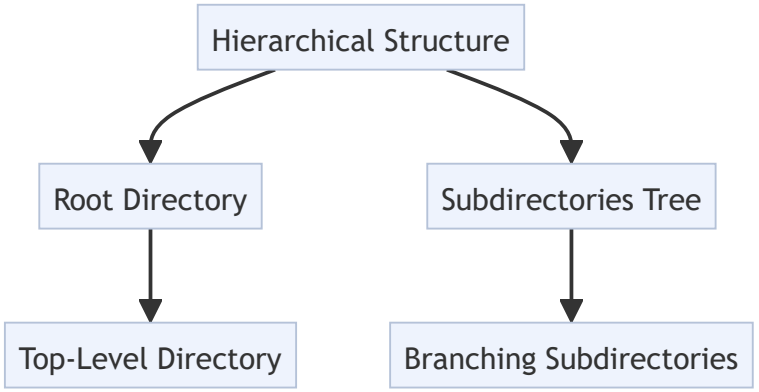
- **Directories:** Containers for organizing files and other directories.
- **Hierarchical Structure:** A tree-like structure for organizing directories and files.
- **File Allocation Table (FAT):** A table that keeps track of which clusters are used and which are free.

Diagram

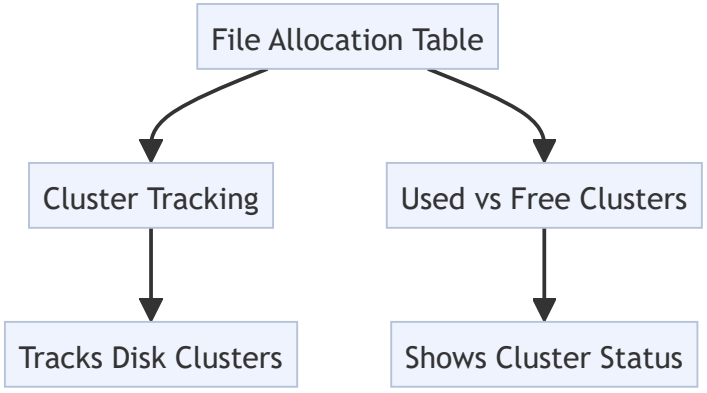
1. File System Directories



2. Hierarchical Structure



3. File Allocation Table



Summary Table

Aspect	Details
Concepts	Files are collections of data stored on a storage device.
Attributes	Name, Size, Type, Location, Access Rights.
Operations	Create, Read, Write, Delete, Rename.
Types	Text Files, Binary Files, Executable Files.

Aspect	Details
File System Structure	Directories, Hierarchical Structure, File Allocation Table (FAT).