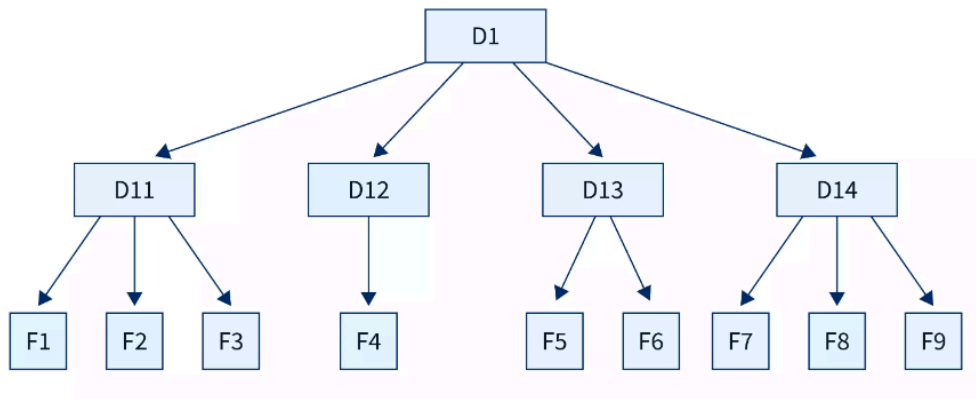


## Assignment 10 : Single level directory file organization technique.

What is the Directory Structure in OS?

A directory is a container that stores files and folders, organizing them hierarchically. The Directory Structure in OS manages entries of files, including file names, locations, protection info, and more. This structure enables efficient file retrieval.



### Operations in Directory Structure in OS

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- **Creating:** Users can create new files and directories, providing unique names for directories.
- **Searching:** Users can search for specific files or directories within a directory.
- **Deleting:** Unwanted files or empty directories can be deleted.
- **Listing:** Users can retrieve a list of files in a directory. Renaming: Files and directories can be renamed to reflect content changes.
- **Linking:** Files can be linked to appear in multiple directories.
- **Unlinking:** Removing links from files in multiple directories.

Directory Structure in OS is a fundamental aspect of managing files and ensuring efficient access in an operating system.

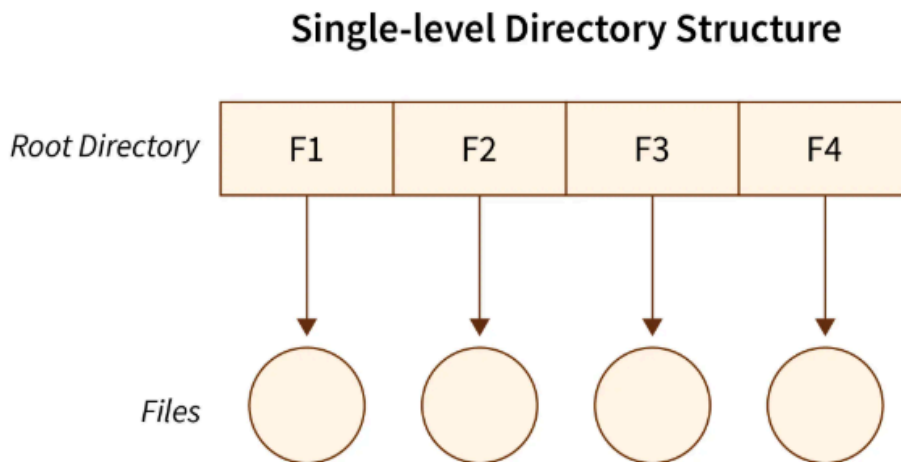
### The Single-Level Directory Structure

The single-level directory structure is the simplest and easiest directory structure out of all the other directories. In this directory structure, all the folders/files are contained under the same directory which is called the root directory. The single-level directory structure gathers all the files under one directory or the root directory, this makes it easy to support and understand.

Now as the different files are under the same-root directory the users are not allowed to create the different sub-directories serving their requirements. This also creates a barrier with the single-level directory as when the number of files increases or more than one user logs into the system both of these need to maintain the standards of giving a unique name to it. This also

means that if two users call their files 'apple', then this, in turn, will violate the unique name standardization.

**Below is the pictorial representation of The Single-level directory structure in OS**



### **The Advantages**

- The implementation of a single-level directory structure is simple and easier as compared to other directory structures in OS.
- If the file size is smaller, then the searching of such files with the single-level directory structure becomes simpler.
- The single-level directory structure allows the operations such as searching, creation, deletion and updating as well.

### **The Disadvantages**

- As several users can log in at the same system to log their files maintaining a unique name becomes difficult leading to a collision. This also means that if the file with the same name is created then the old file will get destroyed first, then the new file (having the same name ) created will replace it.
- If the size of the files is bigger then searching the files in one root directory of the single-level directory structure will become time-consuming and hence difficult.
- The single-level directory structure restricts the grouping of the same type of files together.