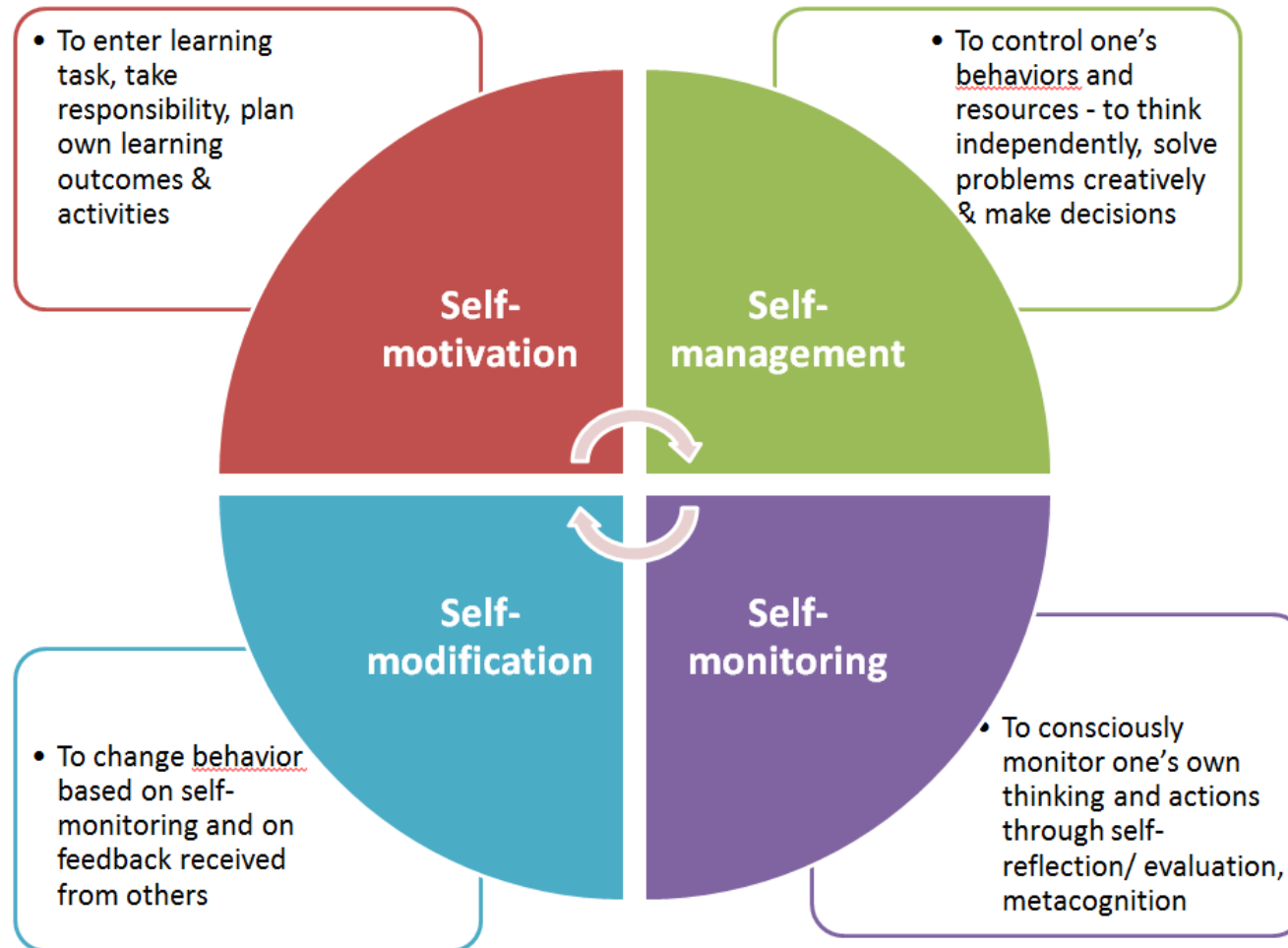# Thank You- for your effort for the self-learning

File System

CS3600

Files

- A *file system* (*FS*) is an integral part of every OS, whose function is to implement the concept of files.

- A *file* is a named collection of information managed on secondary storage by the file system.

- A *record* is a structure of related data items, possibly of different data types, identified within a file by a record number or a *unique key* field.

- An *access method* is a set of operations provided by the OS as part of the user interface to access files. (*Sequential or Direct*)

File Types

- Data is the portion of the file visible to the file's user.

- *Metadata* is information about the format and organization of a file's data and is generally stored in a file header.   https://en.wikipedia.org/wiki/Comparison_of_file_systems#Metadata

- A *file header* is a portion of the file preceding the actual data and is visible to only the file system itself.

- The *magic number* is a short sequence of characters at the start of the file header, which identifies the file type. https://en.wikipedia.org/wiki/Magic_number_(programming)#In_files

- A *file extension* is a sequence of one or more characters following the file name. A file extension, unlike a magic number, is not hidden within the file header and thus can conveniently be examined by the user. https://en.wikipedia.org/wiki/List_of_file_signatures
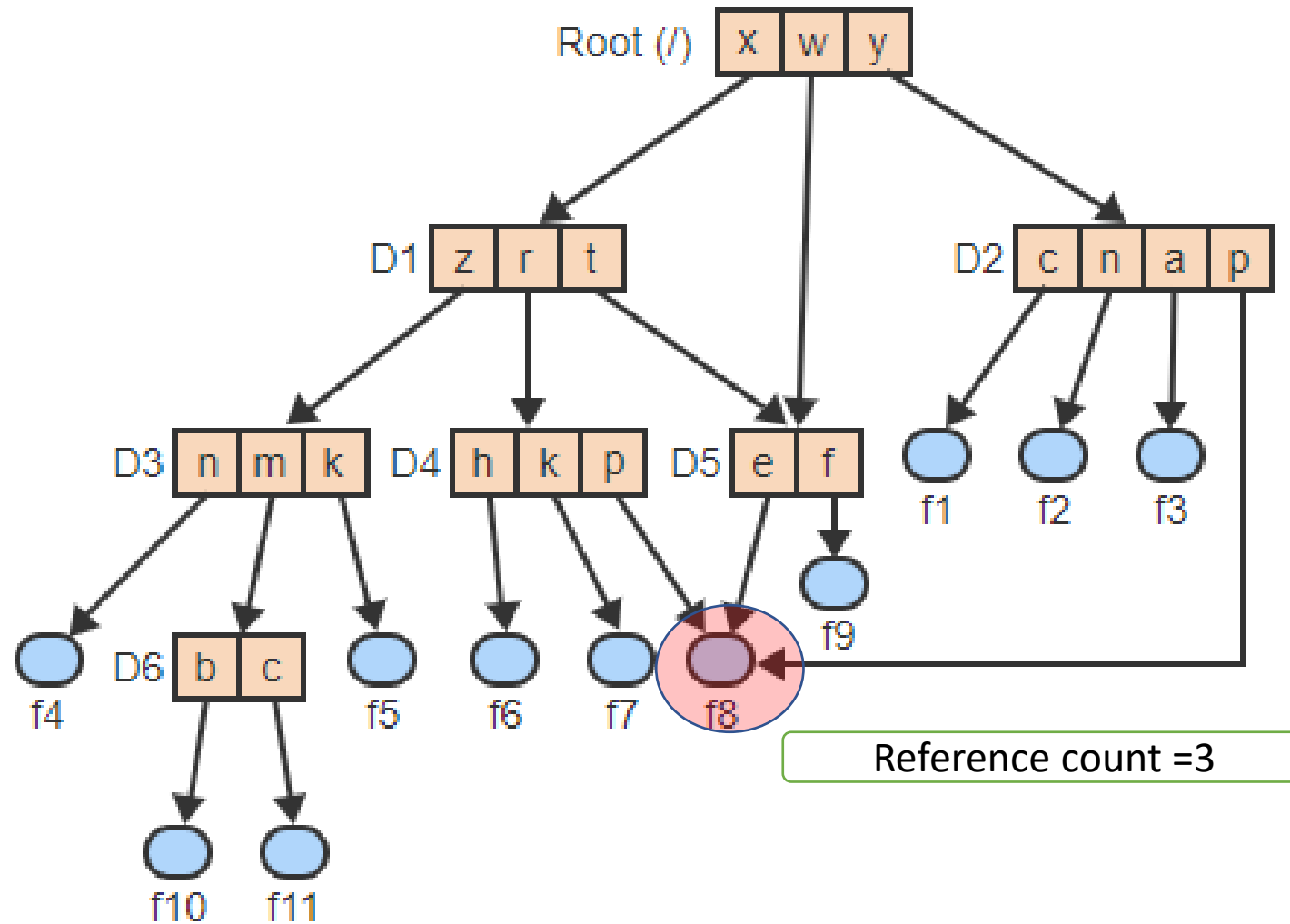
File Directories

- A *file directory* (or **folder**) is a special-purpose file that records information about other files and possibly other directories.

  - **A tree-structured directory hierarchy**

  - **A directed acyclic directory structure**

Tree-structured directory hierarchy

- A ***tree-structured directory hierarchy*** is a collection of directories organized such that
    - (1) every directory points to zero or more files or directories at the next lower level, and
    - (2) every file and directory except the root is pointed to by exactly one parent directory at the next higher

- The ***root*** of a tree-structured directory hierarchy is the highest-level directory, which does not have a parent directory.

- An ***absolute path name*** of a file, uniquely identified by an internal ID, is the concatenation of the directory and file names leading from the root to the file. The individual names are separated by an agreed-upon delimiter, typically a forward slash or a backslash.
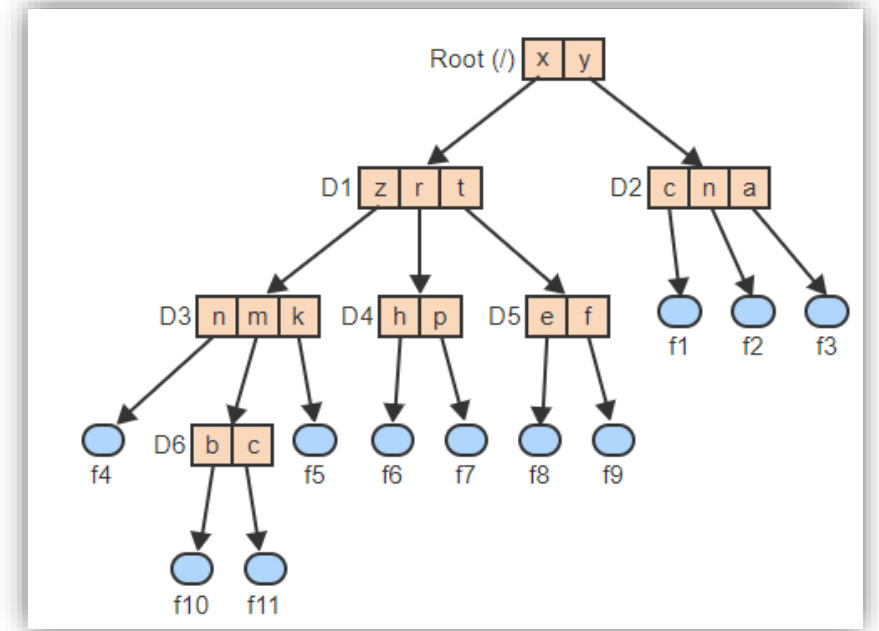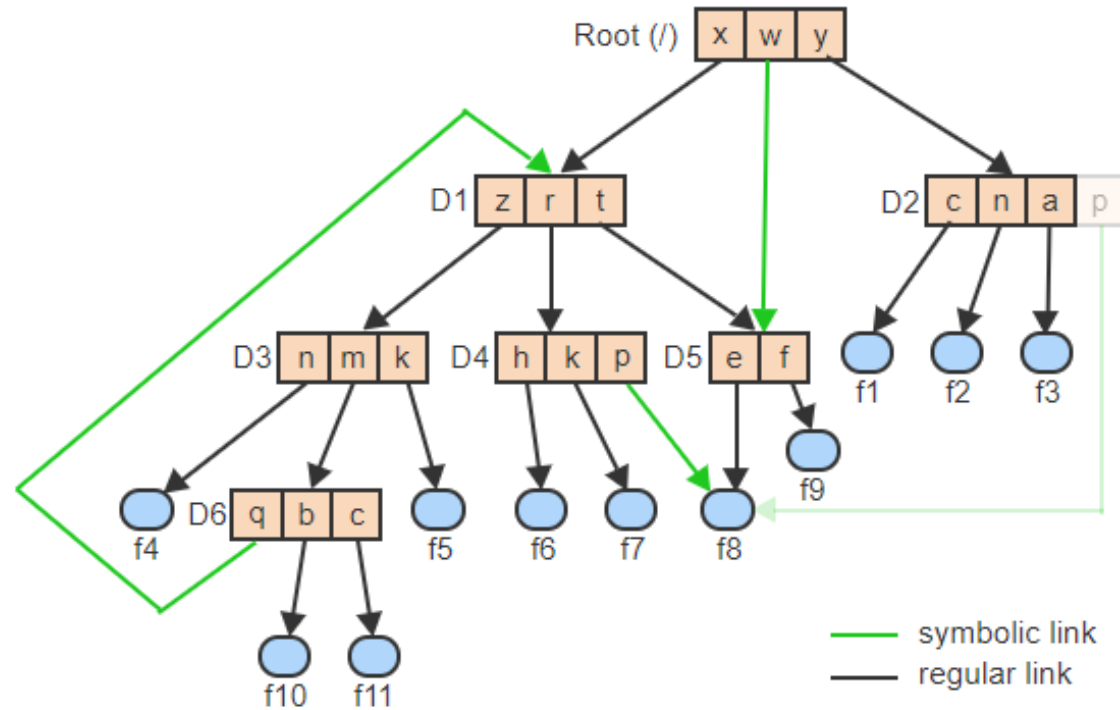
A directed acyclic directory structure

# A directed acyclic directory structure

- When two programmers are working on a shared file.

Directory

- Size: The current size in bytes or words.

- Type: Information to differentiate directories, regular files, executable files, and other types of files supported by the system.

- Location: Information necessary to locate the file's physical blocks on disk.

- Protection: Information about who can access the file and the permitted type of access (Ex: read only or execute only).

- Use: The date and time of file creation, last access, or last modification.

- A File control block (FCB) is a data structure associated with a filename that contains all relevant attributes of the file.

File Control Block
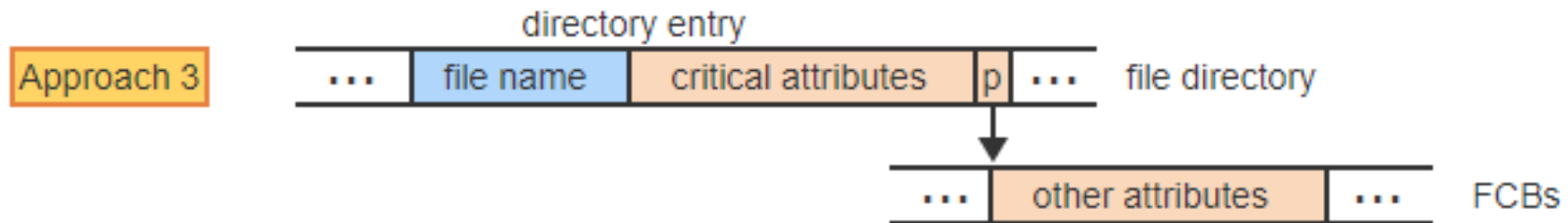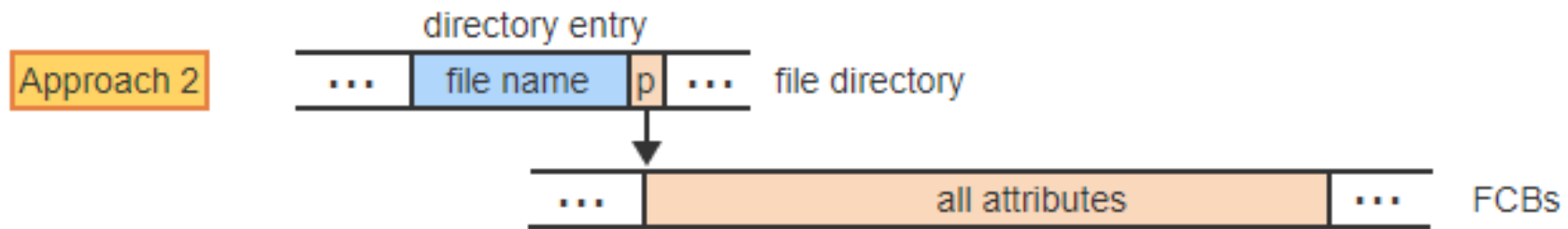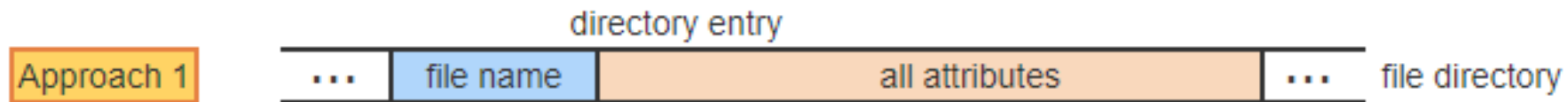
Internal Structure of File Directories
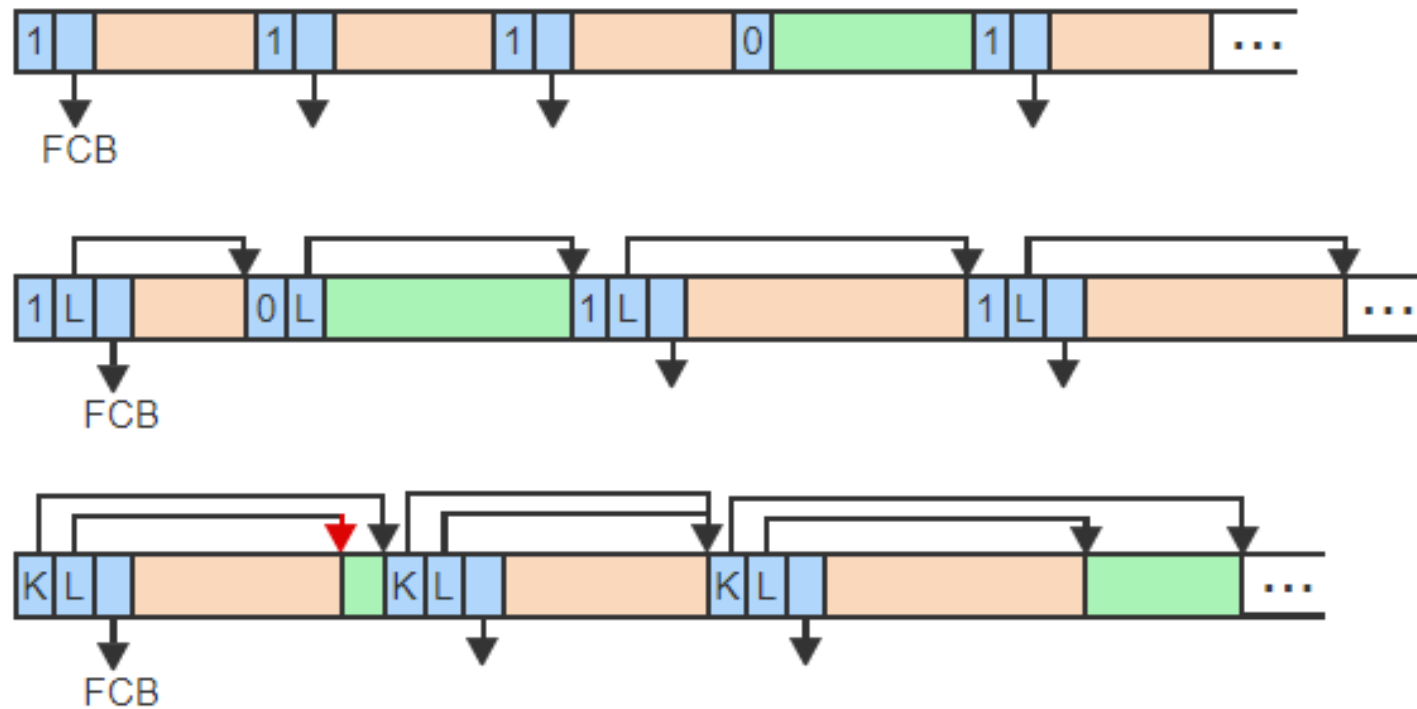
Lab 5

- Use the c program links given in syllabus , Write a program in C to open a text file and read the content of the file . Submit in lab 5

- See solution for worksheet 11 and let me know if you have any questions.

- Complete all participation activity in 8.1,2 and 3

- No homework this week

Operations on File

- Create and Destroy