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Operations may be controlled.

Read, Write, execute, append, delete and list.

- . The most common approach in the protection problem is to make access dependent on the identity of the user. Various users may need different types of access to a file or directory.
- . Limited file protection is also currently available on single user systems such as MS-DOS and Macintosh operating system.

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- 1. It has a hierarchical file structure.
- 2. Files can grow dynamically.
- 3. Files have access permissions.
- 4. All devices are implemented as files.

How does O.S. ensure security in a file system - when information is kept in a computer system a major concern is its protection from both physical damage (reliability) and improper access (protection).

Reliability is generally provided by duplicate copies of files. File system can be damaged by hardware problems (such as errors in reading and writing) power failure, head crashes, disk temperature extremes and condensation) file may be deleted accidentally. Bugs in the file system software can also cause the contents to be lost.

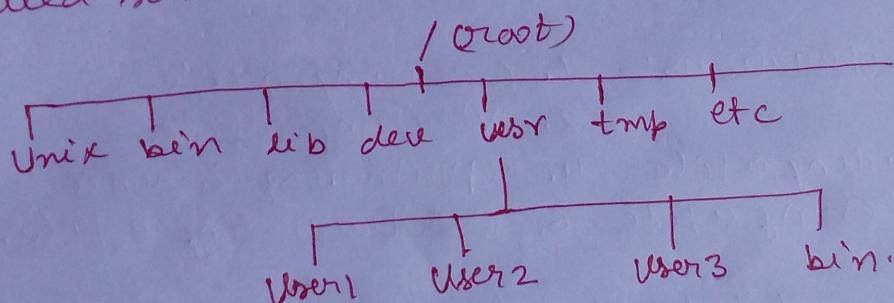
Protection can be provided in many ways. For a small single-user system, we might provide protection by physically removing the floppy disks and locking them in a desk drawer or file cabinet.

- 1. Protection mechanisms provide controlled access by limiting the types of file access that can be made. Access is permitted or denied depending on several factors, one of which is the type of access requested. Several different types of

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## List of Some file system in UNIX - The UNIX ② file system resembles

an upside down tree. The file system begins with a directory called root. The root directory is denoted as slash (/). Branching from the root there are several other directories called bin, lib, usr, etc, tmp and dev. The root directory also contains a file called UNIX which is Unix kernel itself. These directories are called sub-directories, their parent being the root directory. Each of these sub-directories contains several files and directories called sub-sub-directories.



Directory	Contains
bin	Binary executable files
lib	Library functions
dev	Device related files
etc	Binary executable files usually required for system administration
tmp	Temporary files created by UNIX or users
usr	Home directories of all users.
/usr/bin	additional binary executable files.

Following are the salient features of the UNIX file system:

File:- A file is an abstract data type. The O.S provides system calls to create, write, read, reposition, delete and ~~truncate~~ files.

File Attributes:- A file has certain attributes which vary from one O.S. to another, but typically consists of these - Name, Type, Location, Size, Protection, Time, date and User identification.

- File operations
1. Creating a file
  2. Writing a file
  3. Reading a file
  4. Repositioning within a file
  5. Deleting a file
  6. ~~Truncating~~ Truncating a file.

Different Types of files task of file mgt. system:-

File	Usual Extension	Function
1. Executable	exe, com, bin	more ready to run ML program.
2. Object	obj, o	compiled, ML not linked
3. Source code	c, p, Pas, f77, arm, a	Source code in various Languages
4. Batch	bat, sh	Commands to the command interpreter
5. Text	txt, doc	textual, data documents.
6. Word Processor	wp, tex, rtf, etc	various word processor formats
7. Library	lib, a	Libraries of routine for Programmer
8. Printerview	ps, dei, gif	ASCII file/ma format for printing.
9. Archive	arc, zip, tar	related files grouped into one file, sometimes compressed, for archiving or storage.

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