



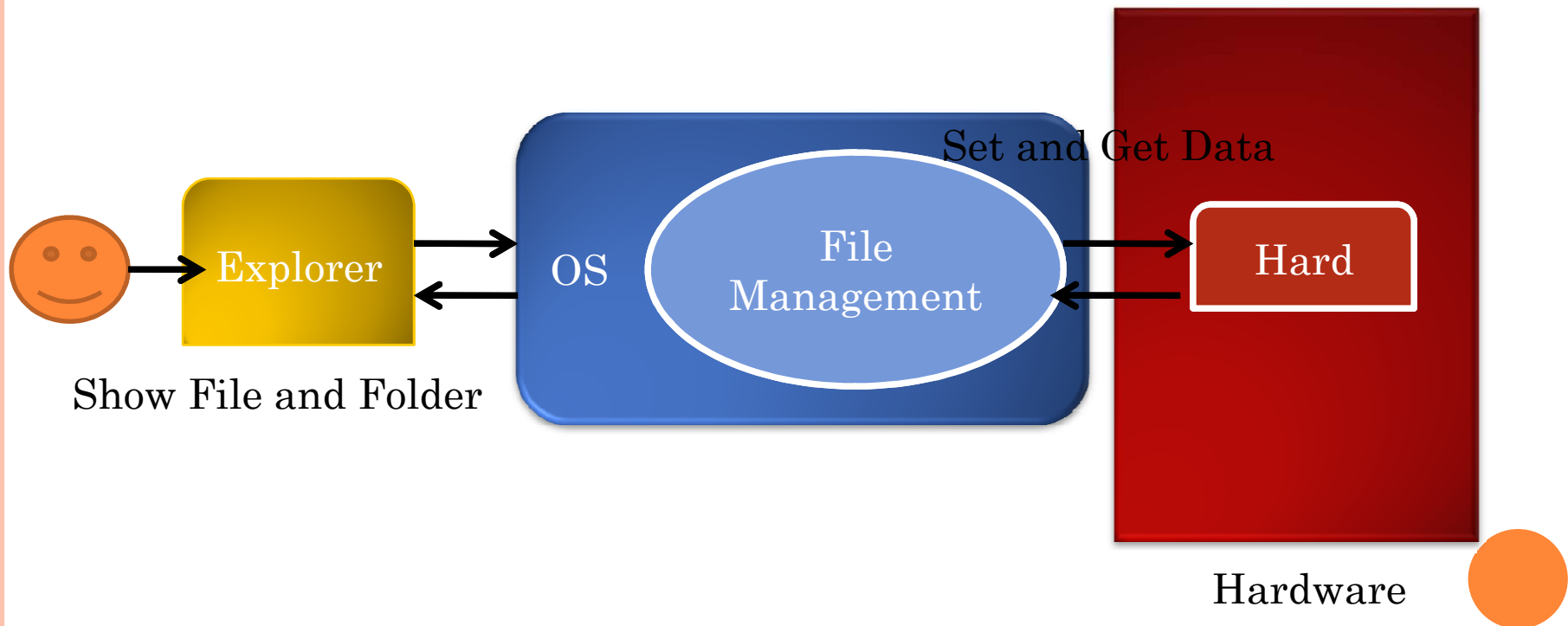
FILE MANAGEMENT



**By
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FILE SYSTEM

- Most **Visible** aspect of operating system
- Provide a mechanism for **storage** and **access** data



FILE SYSTEM

File System

File

Store related data

Folder
(Directory)

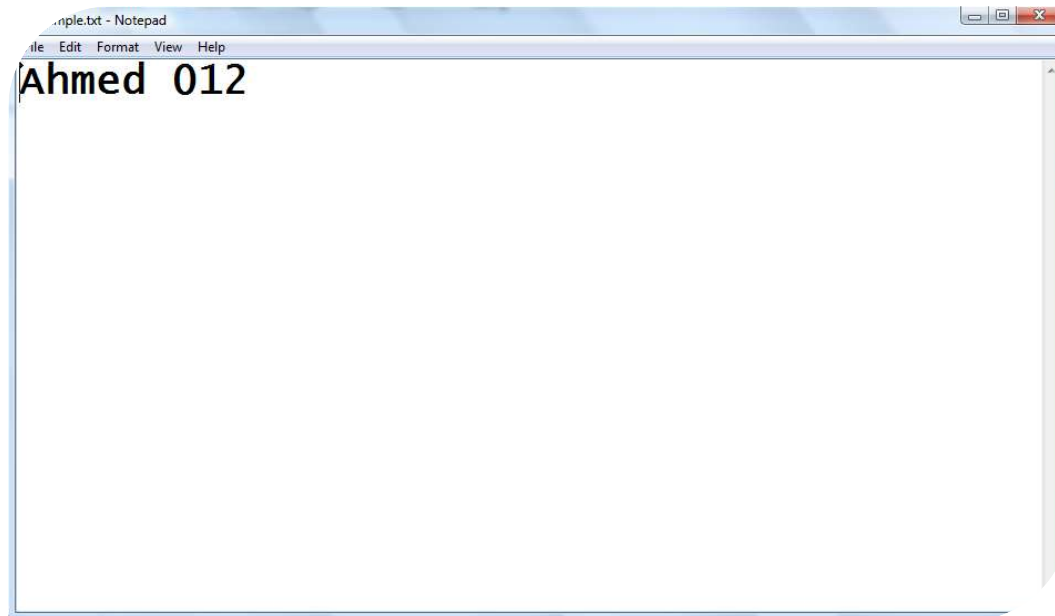
Organize and
provide information



FILE VS FOLDER



Folder VS File



File hold data



File Structure



FILE SYSTEM

- File Concept
- Access Methods
- Directory Structure
- File Sharing
- Protection



FILE ATTRIBUTES

- **Name** – only information kept in human-readable form
- **Identifier** – unique tag (number) identifies file within file system
- **Type** – needed for systems that support different types
- **Location** – pointer to file location on device
- **Size** – current file size
- **Protection** – controls who can do reading, writing, executing
- **Time, date, and user identification** – data for protection, security, and usage monitoring



FILE OPERATIONS

1. Create

2. Delete

3. Open

4. Close

5. Read

6. Write

7. Append

8. Seek

9. Get attributes

10. Set Attributes

11. Rename

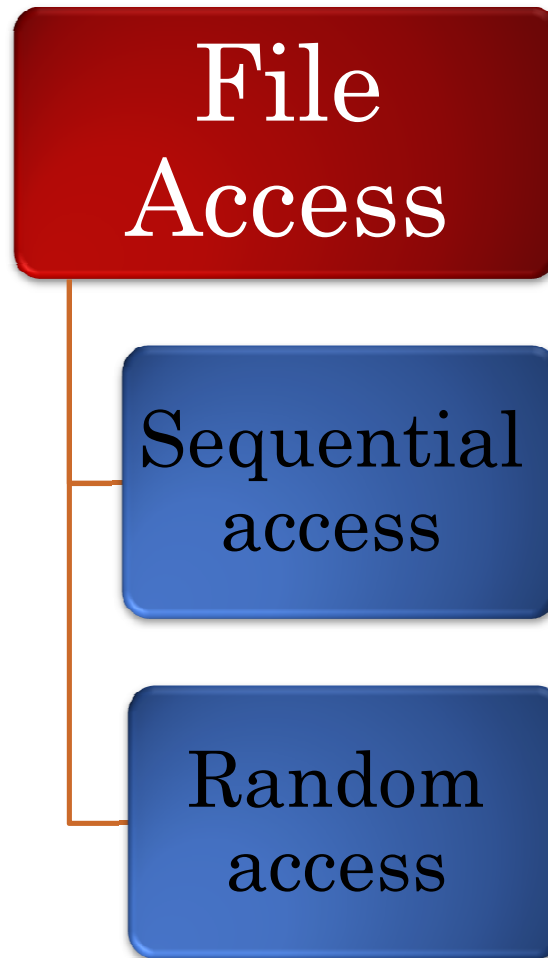


FILE TYPES – NAME, EXTENSION

file type	usual extension	function
executable	exe, com, bin or none	ready-to-run machine- language program
object	obj, o	compiled, machine language, not linked
source code	c, cc, java, pas, asm, a	source code in various languages
batch	bat, sh	commands to the command interpreter
text	txt, doc	textual data, documents
word processor	wp, tex, rtf, doc	various word-processor formats
library	lib, a, so, dll	libraries of routines for programmers
print or view	ps, pdf, jpg	ASCII or binary file in a format for printing or viewing
archive	arc, zip, tar	related files grouped into one file, sometimes com- pressed, for archiving or storage
multimedia	mpeg, mov, rm, mp3, avi	binary file containing audio or A/V information



FILE ACCESS



FILE ACCESS

- Sequential access
 - Read all bytes/records from the beginning.
 - **Cannot** jump around, could rewind.
- Direct / Random access
 - Bytes/records read in **any** order.
 - Essential for **data base** systems.
 - Read can be
 - move file marker once (seek), then read sequentially, or

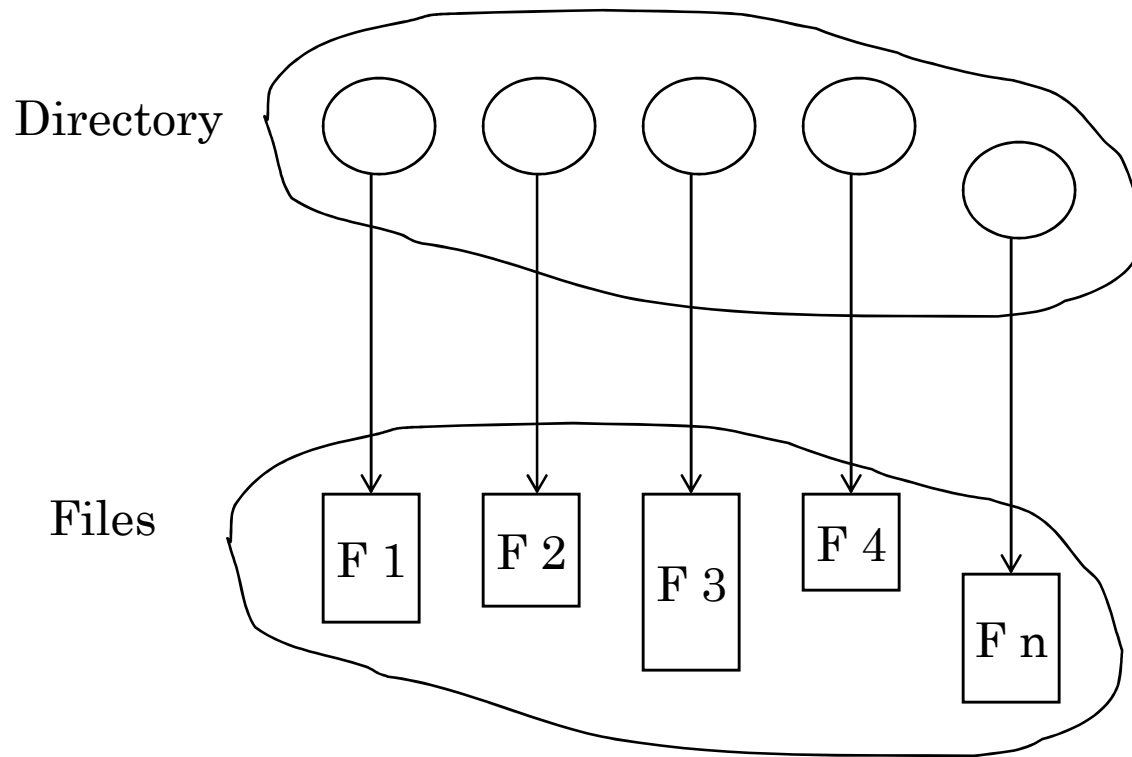


Folder Structure

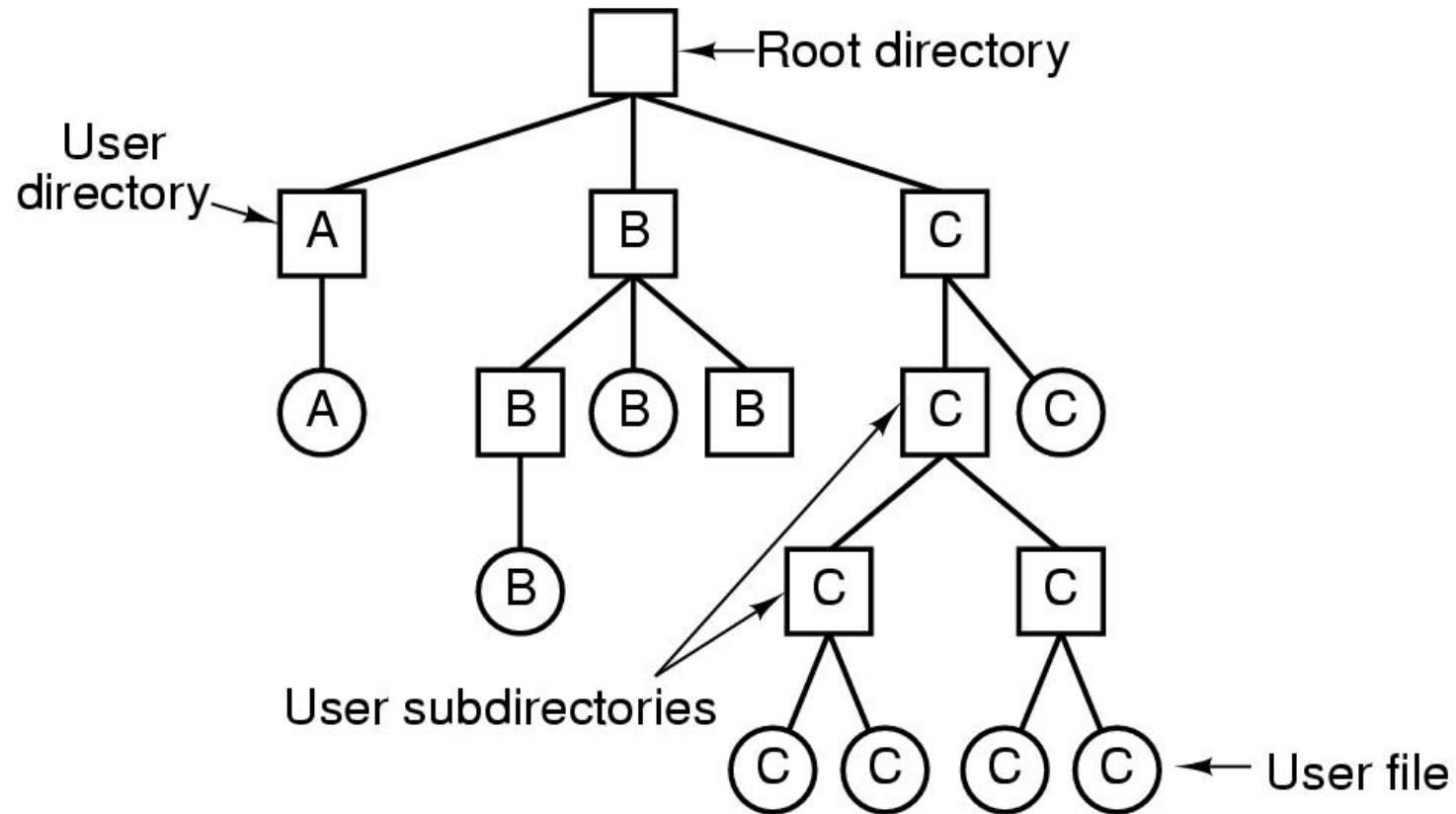


DIRECTORY STRUCTURE

- A collection of nodes containing information about all files



HIERARCHICAL DIRECTORY SYSTEMS



- Files organized into directories.
- Login required to get user to their home directory.



DIRECTORY OPERATIONS

1. Create

2. Delete

3. Opendir

4. Closedir

5. Readdir

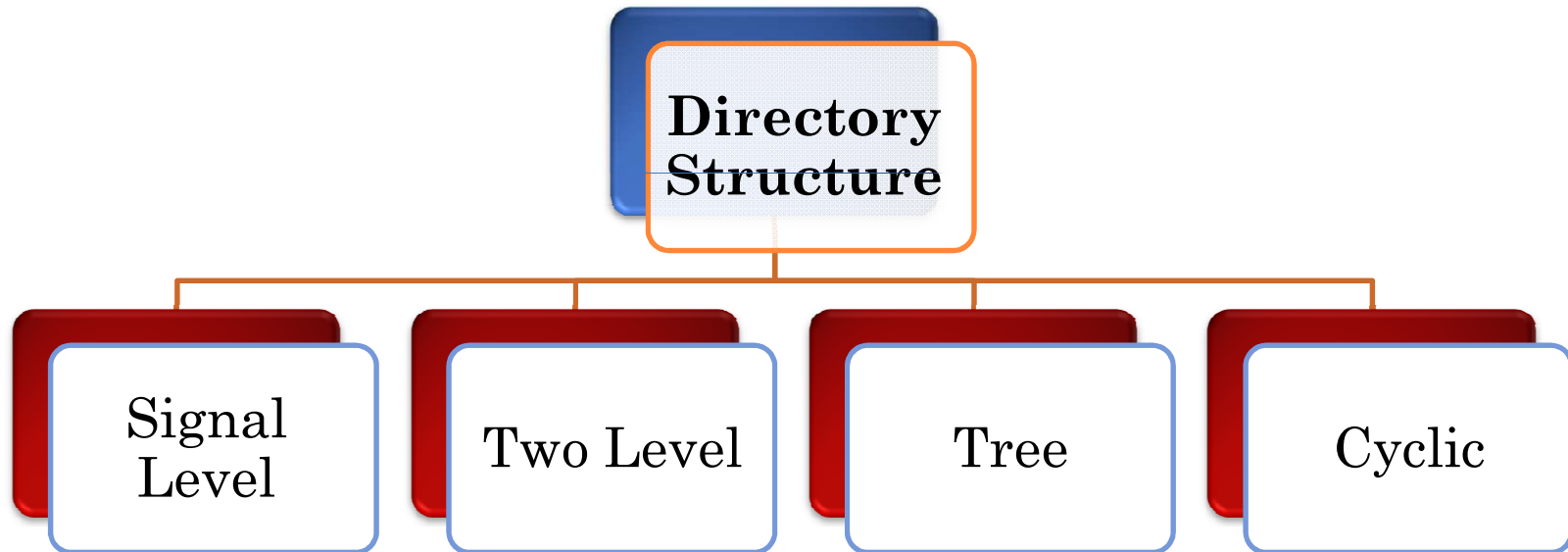
6. Rename

7. Search file

8. List file

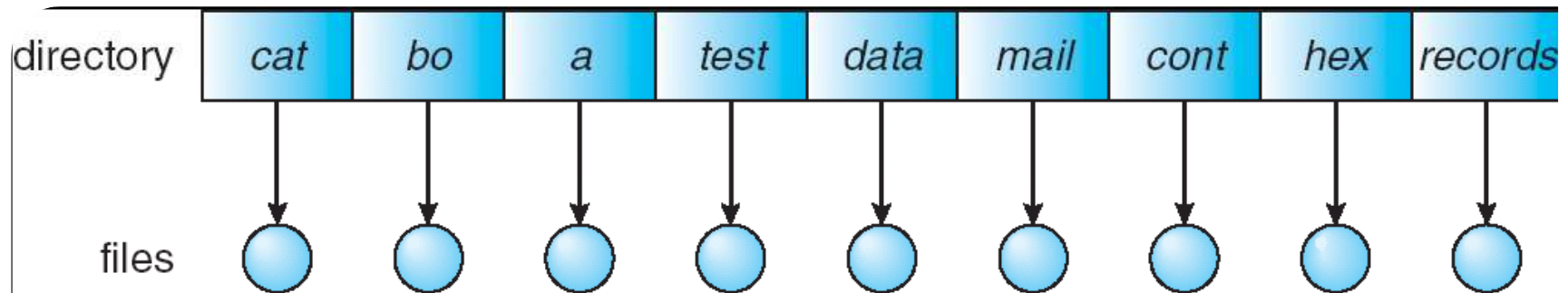


DIRECTORY OVERVIEW



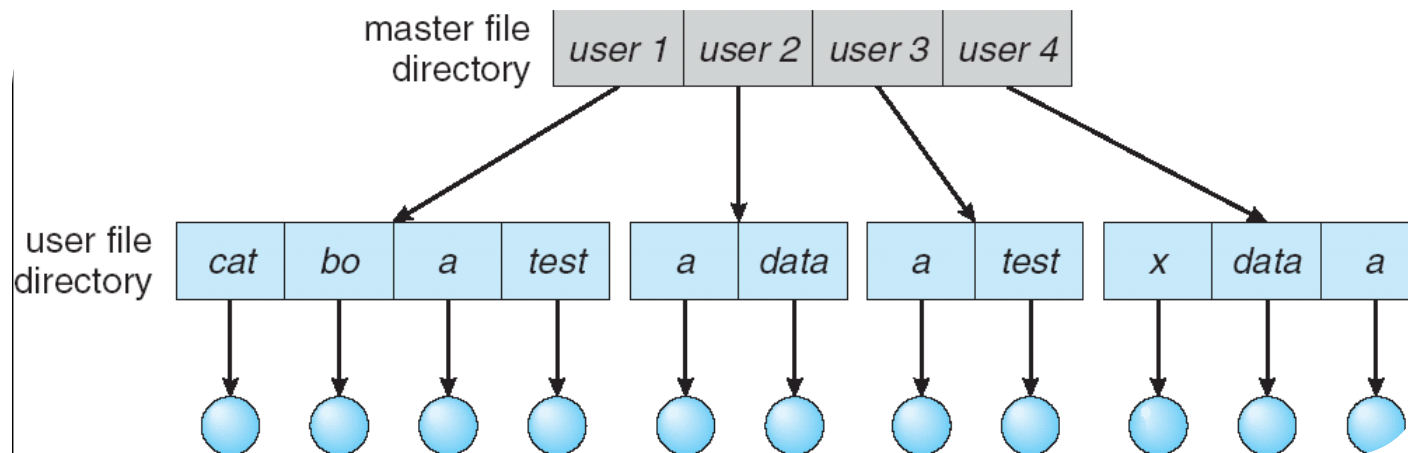
SINGLE-LEVEL DIRECTORY

- A single directory for all users

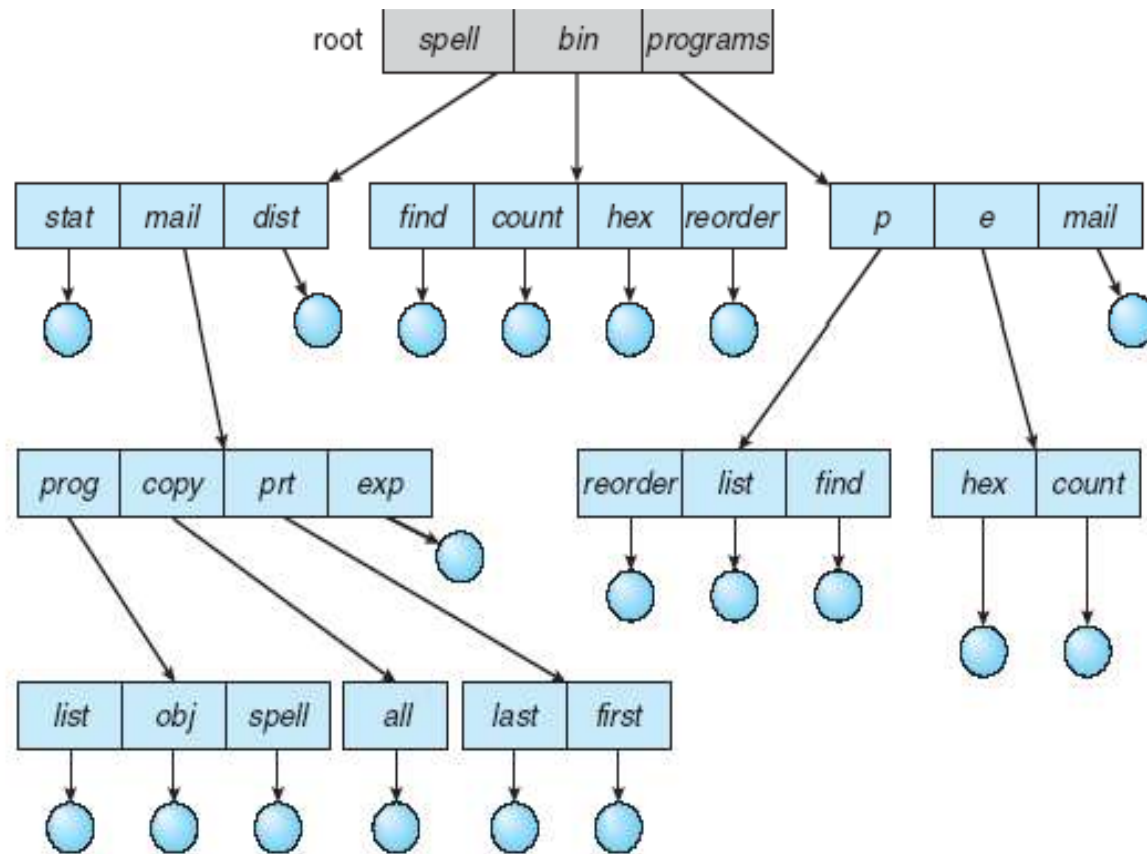


TWO-LEVEL DIRECTORY

- Separate directory for each user

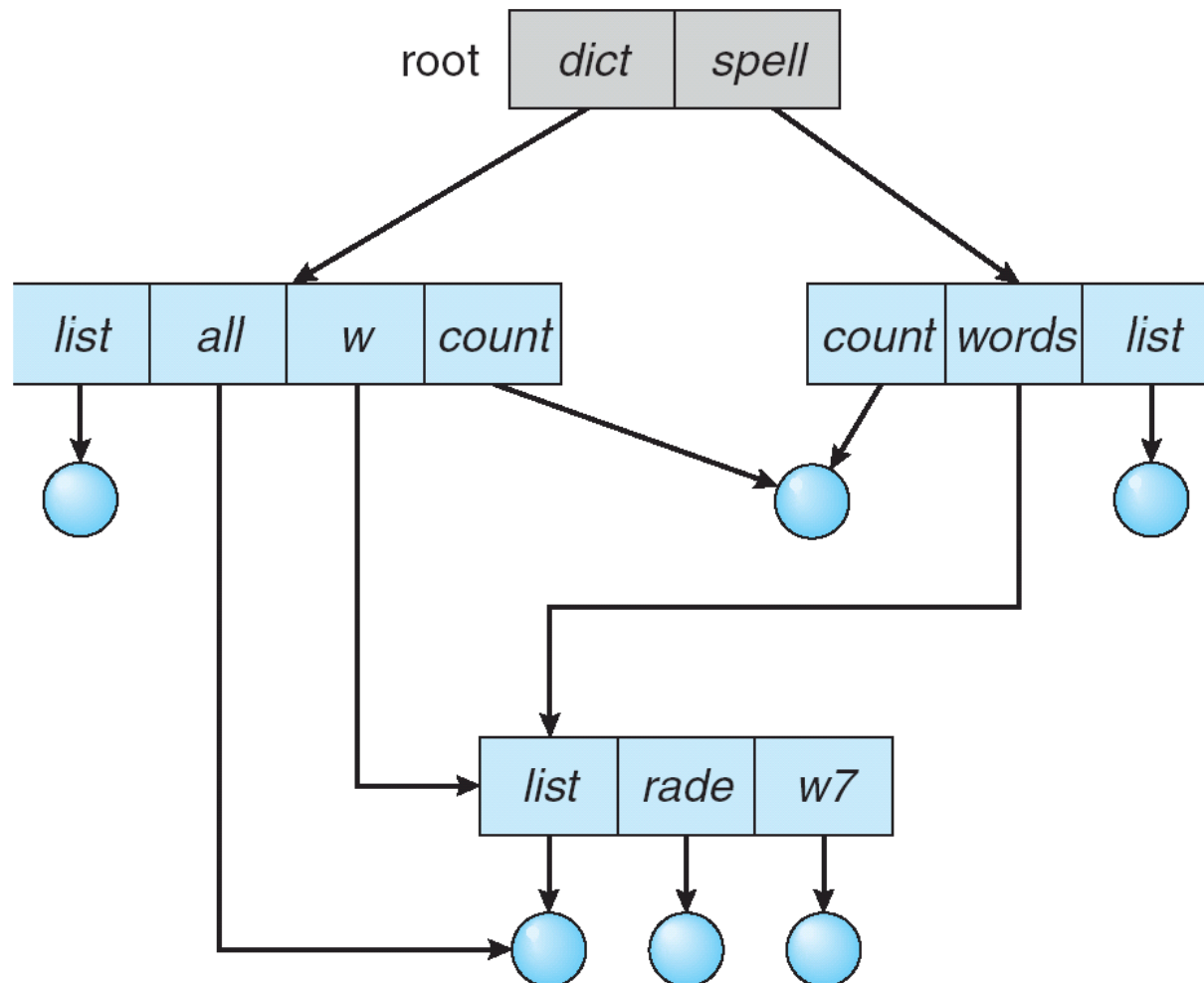


TREE-STRUCTURED DIRECTORIES



ACYCLIC-GRAPH DIRECTORIES

- Have shared subdirectories and files



FILE SHARING

- Sharing of files on multi-user systems is desirable
- Sharing may be done through a **protection** scheme
- On distributed systems, files may be shared across a network
- Network File System (NFS) is a common distributed file-sharing method



FILE SHARING – MULTIPLE USERS

- **User IDs** identify users, allowing permissions and protections to be per-user
- **Group IDs** allow users to be in groups, permitting group access rights



PROTECTION

- Types of access
 - **Read**
 - **Write**
 - **Execute**
 - **Append**
 - **Delete**
 - **List**



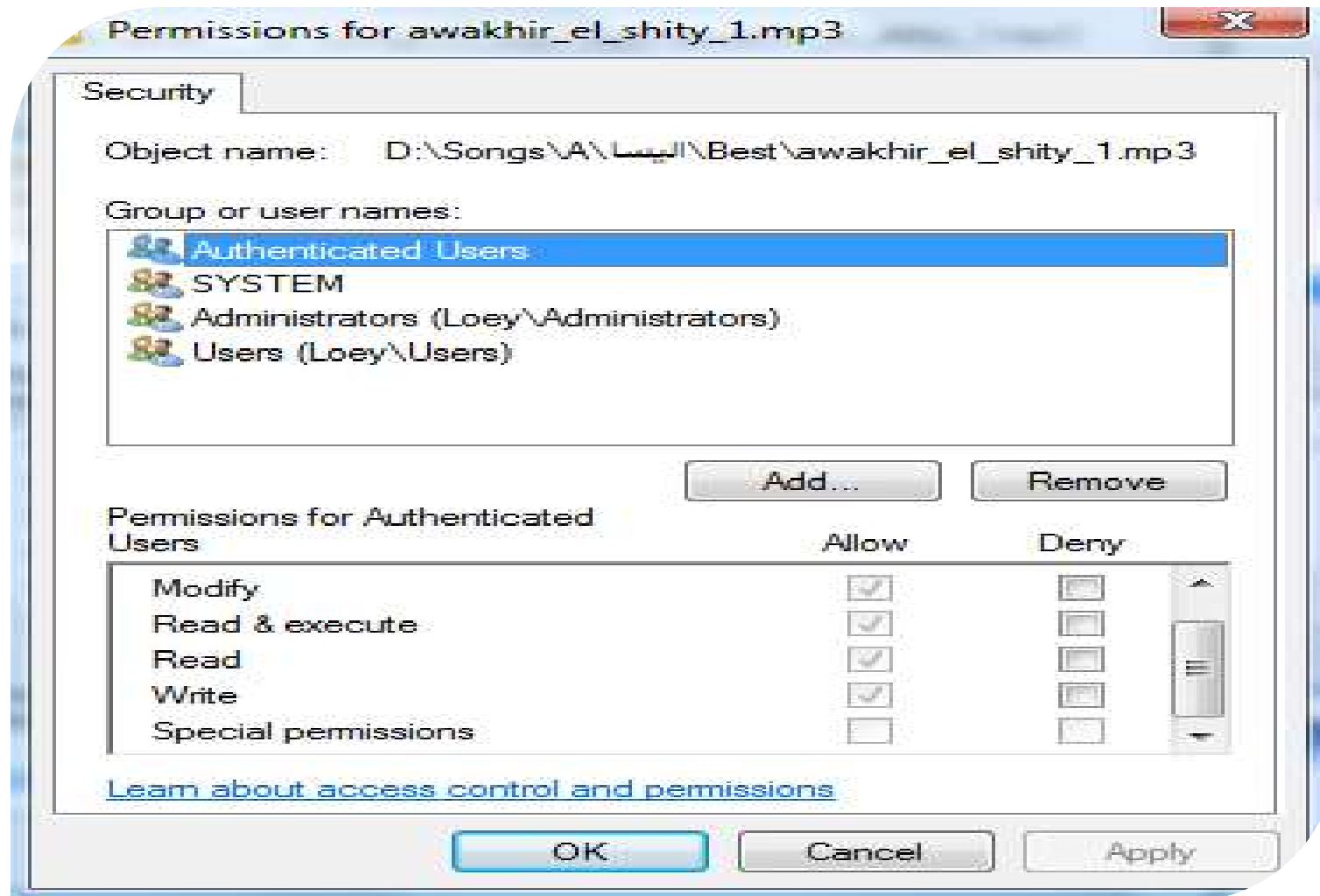
ACCESS LISTS AND GROUPS

- Mode of access: read, write, execute
- Three classes of users

a) owner access	7	⇒	RWX 1 1 1
b) group access	6	⇒	RWX 1 1 0
c) public access	1	⇒	RWX 0 0 1



WINDOWS XP ACCESS-CONTROL LIST MANAGEMENT



THANKS

