Case Study 1: User Management in a Multi-User Unix System

Scenario:

A university has a shared Linux server for students and faculty to access programming resources. The system administrator needs to create user accounts, manage permissions, and ensure security.

Implementation Steps:

1. Creating Student and Faculty Accounts:

useradd student1 → Creates a student account.

useradd faculty1 → Creates a faculty account.

passwd student1 → Sets a password for student1.

2. Assigning Users to Groups:

groupadd students → Creates a group for students.

groupadd faculty → Creates a group for faculty.

usermod -aG students student1 → Adds student1 to the "students" group.

usermod -aG faculty faculty1 → Adds faculty1 to the "faculty" group.

3. Checking Logged-In Users:

who → Displays active users.

id student1 → Shows the UID and GID of student1.

4. Deleting a User Who Graduated:

userdel -r student1 → Removes student1 and their home directory.

5. Checking Password Expiration Policy:

chage -l faculty1 → Checks password expiry for faculty1.

Case Study 2: File Management in a Software Development Team

Scenario:

A software development team is working on a Unix-based system to manage project files efficiently.

Implementation Steps:

1. Creating a Project Directory and Files:

mkdir ProjectX → Creates a new directory for the project.

cd ProjectX → Navigates to the project directory.

touch main.py README.md → Creates a Python file and a README.

2. Checking and Managing Files:

ls -l → Lists files with details.

cat README.md → Displays README contents.

nano README.md → Edits the README file.

3. Copying and Moving Files:

cp main.py backup.py → Creates a backup of the script.

mv backup.py old_version.py → Renames the backup file.

4. Archiving and Deleting Files:

rm old_version.py → Deletes the old backup file.

rm -r ProjectX → Deletes the entire project directory if needed.

5. Checking File Content:

head main.py → Displays the first 10 lines of the script.

tail -n 5 main.py → Shows the last 5 lines.

These case studies provide practical usage of user and file management commands in real-world scenarios. Let me know if you need further details!