Linux Programming- Assignment 5



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Sem: 3rd (2 year)

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**1. What is a shell + types + why bash popular:**

* Shell = Interface between user and OS (runs commands).
* Types: Bourne shell (sh), Bash, Korn shell (ksh), C shell (csh), Z shell (zsh).
* Bash is popular because it’s default in most Linux, easy to use, and supports scripting.

**2. ls -Z command:**  
Shows **SELinux security context** of files (extra security info).

**3. List hidden files:**

ls -a

(Shows files starting with .).

**4. Hard link vs Soft link:**

* **Hard link:** Another name for the same file (points to same inode). File exists even if original deleted.
* **Soft link (symlink):** Shortcut to file path. Breaks if original is deleted.  
  Example:

ln file1 file2 # hard link

ln -s file1 link1 # soft link

**5. Permissions -rwxr-x--x:**

* Owner: read, write, execute (rwx).
* Group: read + execute (r-x).
* Others: only execute (--x).

**6. Change group ownership:**

chgrp staff data.txt

**7. Why 777 is dangerous:**

* 777 = everyone can read, write, execute.
* Anyone can delete or modify file.  
   Example: If /etc/passwd had 777, any user could change it → security risk.

**8. apropos vs whatis:**

* apropos (or man -k): Searches manual pages by keyword.
* whatis (or man -f): Shows one-line description of a specific command.

**9. Redirect error output to file:**

command 2> error.log

**10. Append output with tee:**

ls | tee -a output.txt

-a appends instead of overwriting.