**Linux Programming: Assignment-5**

**1. What is a shell in Linux OS? How many categories of shell is currently exists in Linux? Why bash shell is very popular in Linux distribution?**

Answer:

A shell is a command-line interface that interacts with the Linux OS.

Several types of shells exist, including Bash:

Sh, Csh, Ksh, Zsh, and Fish.

Bash is popular due to its wide adoption, features, compatibility, community support, and scripting capabilities.

**2. What does the ls -Z command display?**

Answer:

Security context or SELinux labels of files and directories

**3. Write a command to list all hidden files in the current directory.**

Answer:

ls -a

**4. Explain the difference between hard links and soft links (symbolic links) in Linux.**Answer:

|  |  |
| --- | --- |
| **Hard Links** | **Soft Links** |
| * Shares the same inode number as the original file. | * Has a different inode number than the original file |
| * If the original file is deleted, the hard link still points to the file's data on disk. | * If the original file is deleted, the soft link becomes invalid and points to nothing. |
| * Can't cross file system boundaries (can't link to a file on a different partition). | * Can cross file system boundaries (can link to a file on a different partition). |

**5. A file has permissions -rwxr-x--x. Explain who can read, write, and execute it.**

Answer:

* Owner (u): Read, Write, Execute (rwx)
* Group (g): Read, Execute (r-x)
* Others (o): Execute (--x)

**6. Write the command to change the group ownership of a file data.txt to group staff.**

Answer:

chgrp staff data.txt

**7. Why is it dangerous to give 777 permissions to a file? Explain with an example.**

Answer:

7 means anyone can read, write and execute files. so it is not good to use 777.

For example, let's consider a file google.com. It contain important document. If we give 777 permission means anyone can use it and modify. So it will harm the file and the data which stored.

**8. What is the difference between apropos (i.e., man -k) and whatis (i.e., man -f)?  
Answer:**

apropos: Search for man pages with a keyword.

whatis: Show a brief description of a command.

**9. Write a command to redirect the error output of a command to a file named error.log**.

Answer:

ls command 2> error.log

**10. How can you use the tee command to append output to a file instead of overwriting it?**

Answer:

Using -a

tee -a filename