

LAB 5

Course Code: CSC 2209

Course Title: Operating Systems



**Dept. of Computer Science
Faculty of Science and Technology**

Lecturer No:	05	Week No:	05	Semester:	
Lecturer:	<i>Name & email</i>				

Lecture Outline



1. grep Command
2. Case in-sensitive search using grep
3. File Permissions in Linux/Unix with Example
4. Ownership of Linux files
5. Change permissions of a file

grep Command

- ❑ **grep:** The -i option enables to search for a string case insensitively in the give file. It matches the words like “UNIX”, “Unix”, “unix”.
- ❑ `$ grep -i “UNix” sample.txt`

Search for a given string in a file (case in-sensitive search)

- ❑ **Case insensitive search** : The grep filter searches a file for a particular pattern of characters, and displays all lines that contain that pattern.
 - ❑ `$grep -c "unix" sample.txt`
- ❑ **Displaying the count of number of matches** : We can find the number of lines that matches the given string/pattern

Cont'd

- ❑ **Displaying only the matched pattern :** By default, grep displays the entire line which has the matched string. We can make the grep to display only the matched string by using the -o option.

```
$ grep -o "unix" sample.txt
```

- ❑ **Inverting the pattern match :** You can display the lines that are not matched with the specified search sting pattern using the -v option.

```
$ grep -v "unix" sample.txt
```

File Permissions in Linux/Unix with Example

- ❑ Linux is a clone of UNIX, the **multi-user operating system** which can be accessed by many users simultaneously. Linux can also be used in mainframes and servers without any modifications. But this raises security concerns as an unsolicited or **malign user** can **corrupt, change or remove crucial data**. For effective security, Linux divides authorization into 2 levels.
 - Ownership
 - Permission

Ownership of Linux files

Every file and directory on your Unix/Linux system is assigned 3 types of owner, given below.

- ❑ **User:** A user is the owner of the file. By default, the person who created a file becomes its owner. Hence, a user is also sometimes called an owner.
- ❑ **Group:** A user- group can contain multiple users. All users belonging to a group will have the same access permissions to the file. Suppose you have a project where a number of people require access to a file. Instead of manually assigning permissions to each user, you could add all users to a group, and assign group permission to file such that only this group members and no one else can read or modify the files.
- ❑ **Other:** Any other user who has access to a file. This person has neither created the file, nor he belongs to a usergroup who could own the file. Practically, it means everybody else. Hence, when you set the permission for others, it is also referred as set permissions for the world.

Change permissions of a file

user group others

rwX rwX rwX

421 421 421

7 7 7

User: $rwX = 4 + 2 + 1 = 7$

group: $rwX = 4 + 2 + 1 = 7$

Other: $rw- = 4 + 2 + 0 = 6$

Current permissions of guest directory is `rwX rwX rw_`

Change the permissions of guest directory to `-rw-r--r--`

User: $-rw = 0+4+ 2 = 6$

group: $-r- = 0 + 4 + 0 = 4$

everyone: $-r- = 0+4+0 = 4$

`chmod 644 guest`

Change permissions of a file (cont'd)

user group others

rwX rwX rw-

421 421 420

7 7 6

User: $rwX = 4 + 2 + 1 = 7$

group: $rwX = 4 + 2 + 1 = 7$

Other: $rw- = 4 + 2 + 0 = 6$

1. Find the value for, rw- rw- ---
2. Create a file os1.txt in dir2sub. Give the read, write and executable permission for the user, read and executable permission for the group and give others read permission.



Books

- ❑ Unix Shell Programming
 - ❑ Written by Yashavant P. Kanetkar