

# LAB 5

Course Code: CSC 2209

Course Title: Operating Systems



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

<b>Lecturer No:</b>	<b>05</b>	<b>Week No:</b>	<b>05</b>	<b>Semester:</b>	
<b>Lecturer:</b>	<i>Name &amp; 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 rw\_

421 421 420

7 7 7

User:  $\text{rwX} = 4 + 2 + 1 = 7$

group:  $\text{rwX} = 4 + 2 + 1 = 7$

Other:  $\text{rw-} = 4 + 2 + 0 = 6$

Current permissions of guest directory is `rwX rwX rw_`

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

User:  $-\text{rw} = 0 + 4 + 2 = 6$

group:  $-\text{r-} = 0 + 4 + 0 = 4$

everyone:  $-\text{r-} = 0 + 4 + 0 = 4$

`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