**15/01/2025**

- LTS:
    - Long Term Support
    - April release even years
- Ubuntu releases two time – April (04) and October (10)
- (22.04 2022 April release)
- Every two years - Even
- April release - Stable
- In between releases are unstable and short term (Odd years).
- 24.04.5: -
    - 24 - Year
    - 04/10 - Month
    - 5 - Patch Update
- SSD – Solid State Drive / NVM – Non-Volatile Memory
- Gparted – Disk management for Linux
- NTFS – Organize files (File System)
- SWAP partition – Virtual Memory / Buffer
- MBR - 4 primary partitions and <2TB disk can be managed
    - Master Boot Record
- GPT – Up to 128 Partitions and maintains backup
    - GUID Partition Table
- BIOS - Basic I/O System
- UEFI - Unfied Extensible firmware interface
- GRUB – Dual boot loader (Grand Unified Bootloader)
- Hypervisor – Creation and management of Virtual Machines
- Ls –lrt :  command –options -arguments
    - ls – command
    - lrt - Options
    - Arguments
- Ctrl + R: search previous commands (Case Sensitive)
- Regex
- /dev/sda_ : _ is partition number
- Timedatectl – Set timezone
- SATA – Serial advanced technolgy Attachment (connect storage devices to motherboard)

**HW:**

How Linux kernel released? - Linux Kernel Greg Hartman

- kernel.org
- uname –a (Gives kernel version)
- lsb_release –a (lsb – linux standard base)

**End Sem: -**

Which OS will you recommend? - LTS version released on even years

On starting laptop, some tests are done.

- Is ram available?
- Is OS available?
- …etc.

Ls –lrt aman?.pdf - (searching pdf file starting with aman)

**16/01/2025**

- ssh - login virtual machine (secure shell)
- post - bios - bootloader - choose os - boot into the os
- proc - process (cpuinfo / meminnfo) --> info about running tasks on cpu or memory
- -i -> ignore case
- grep uses regex to **search** in directory --> command | grep "search"
- Sim / dim – Single/dual
- OPTANE – same as virtual memory
- Top – task manager of Linux
- ps – shows processes running
- CPU:
    - Registers
    - L1/L2 cache
    - RAM
    - ROM
- Directories has **rooted** hierarchy
- PATH – list of directories which will be traversed to find a utility
- dstat – show read/write on cpu, disk, etc.
- Net/total - storage (SSD)
- cp . . - copy
- mv – move the file
- cp –p --> copies w/o changing timestamp
- ls –a –-> show hidden files
- GPL – GNU public license (GNU - **GNU's Not UNIX**)

HW:

How to find files larger than 20mb? - find Downloads/ -size +20M

By name? - find Downloads/ -name "bcd.txt"

Find files not used for n days and greater than 1GB? - find Downloads/ -atime +1 –size +20M

**18/01/2025**

- rm –rf: Deletes all files by running recursively
- PATH=/home/rks : this will change path
- ip addr : returns ip address
- python3 –m http.server : starts a server
    - -m : run module as a script
- http://ip-addr:8000/
- File permissions:
    - _ _ _ _ _ _ _ _ _ _
    - In ls command it shows as follows:
        - Permissions
        - _
        - User
        - Group
        - Size
        - Timestamp
        - Path
    - Read(r), write(w), execute(x)
    - 10 bits:
        - 1 : directory(d) / _ / link (l)
        - rkx
        - 3 : permissions to user : _ _ _
        - 3 : permissions to group of user : _ _ _
        - 3 : permissions to all other : _ _ _

- - R = 4, w=2, x=1
  - 644 : _ r w _ r _ _ r _ _
  - Umask – its the difference
  - S – bit : makes the user temp owner. This is how file are executed owned by root (sudo, passwd)
- mkdir – make directory
  - -p : don't overwrite if exists
  - rmdir – remove directory
- pwd – present working directory
- chmod – change permission
- chown – change owner
- chmod +r *.txt - to change for all txt files
- chmod (u/g/o)+r *.txt - to change for all txt files
  - U – user
  - G – group
  - O – others
- chmod 644 b.txt
- Extension not important in Linux
- Vi – file editor
- command / insert mode
- yy : copy / yank
- _p : replace _ with number (number of times to paste statement)
- _yy : copy next _ lines
- d – del
- Ndd – delete n lines
- U – undo

Hw:

Replace dup with pud? :%s/dup/pud/gc (g:global and c:confirm)

Copy multiple lines? nyy

SCP secure copy protocol

Find lines with particular word and display line number? grep –in "str" a.txt

-i : ignore case

-n : print with line number

**22/01/2025**

- ~ : cd to Home
- chown : change owner
- vi
    - /__ : searching
- :set ic : : ignore case
    - ^ : start
    - $ : end
    - :%s/string_to_find/str_to_replace_with/gc : replace
    - gc : used so it asks everytime
    - If gc not used, only first occurence after cursor will be replaced
    - If g : replace all
- grep –in "str" a.txt - returns line with line number in which str appear

- \ : backward slash : Windows
- / : Forward : Linux
- \ : should be used when the char is part of syntax
- ^M : ctrl v + ctrl M
  - Control char
  - For removing:
    - :%s/ctrl+V + ctrl+M//gc
- -h : help
- --version
- :%s/^him/HIM/gc : replace him which appears at start with HIM
  - For last use $
- sudo –i : open root environment
- passwd –S : check password status :
  - L : Locked
  - NP : no passwd
  - P : passwd set
- Sudo != su
  - su -
  - root
- NTFS : New Technology File System
- FAT : FIle Allocation Table
- grep -v "str" : invert match : all others except str
- Bin : contain binary
- Var : contain variables / logs of system
- Endianness: how bits are stored
- Big Endian : MSB is strored at lowest address
- Little Endian : LSB at lowest address
  - Num is 0x12345678 (12 is MSB)
  - Add : 00 01 02 03
  - Nui :  12 34 56 78 : Big
  - Nui :  78 56 34 12 : Little

HW:

Even after changing ownership to root why user is able to modify?

**23/01/2025**

- If there is space in name of file and we want to grep it, use double quotes.
  - ls –lrt | grep "grading policy.docx"
- CLI : terminal is command line interpretor
- compgen : to search commands – complete generation
  - Compgen –A command l
    - Returns all commands starting with l
- date : info about date and time
- && - and
- x : delete one character
- cw : deletes word
- bash : evaluates ` `
- Uptime : give time for which laptop is on
- cal : calender
- Tree : print directory tree
- . - repeat last command in vi
- ls –lrt | cut –d"." -f1
  - .SPLIT OF Linux

- o F1 f2 f3 is used to refer to part to return
- o My name is himanshu
- o F1 is My, f2 is name, f3 is is, f4 is himanshu
- o F1,2 will return f1 f2 with . In between
- o Can be any delimiter
- Cron : run scheduled tasks
  - o Open by vi /etc/crontab
  - o minute | hour | day_of_month | month | day_of_week
  - o * means all
  - o Min Hr Dom M Dow User Command_to_be_excuted
  - o tar –cvf name_of_compressed_file.tar.gz directory_to_compress
    - ▪ C: compress
    - ▪ V: verbose
    - ▪ F: force
  - o Tar, tar.gz , .tgz - different level of compression

**29/01/2025**

- Vim :
  - o In vi, # is used for comment
  - o Scripting
    - ▪ #!/bin/sh
  - o echo is for printing in script
  - o In echo, we can use $_ in "" where _ is index.
    - ▪ Example
      - • ./a.out 2023UCS0092 HIMANSHU\
      - • Echo "$0" - print ./a.out
      - • ./a.out - 0
      - • 2023UCS0092 – 1
      - • HIMANSHU – 2
    - ▪ echo "print $1" : print 2023UCS0092
    - ▪ If space use ""
  - o If else in vi :
    - ▪ If []; then

- Fi
- Space is mandatory in [] at starting and ending
- If elif else
- Syntax
  - If [ ]; then
  - elif []; then
  - Else
- fi ends if block
- Comparotors
  - -ne : not equal
  - -lt : less than
  - -eq : equal
  - -le : less or equal
  - -ge : greater and equal
  - -gt : greater than
  - -e : check if file exists
  - -nt : newer than
  - -d : check if directory exists
  - -s : check if string  is empty
  - -ot : older than
- $ symbol:
  - $_ : where _ is number or index of argument
  - $? - return exit code of previous run
  - $# - number of arguments
- exit code of vi : between 0 to 255
  - Use num mod 256
- Loops:
  - **While Loop**:
  - while [ $i –le $n ]; then
    - Statements …
    - For incrementing i to i+1
      - i=$(expr $i+1)
  - Done
  - **For loop:**
  - for (( i = 1; i <= $nums; i++ )); do
    - Sum=$((sum+i))
  - done

- For evaluating:
  - Z = `expr $x + $y`
- If [ -e $file]; do
  - Check if file exist
  - For directory, use –d instead of –e
- For bash scripting, use at head
  - #!/bin/bash
- In double quotes, substituition happens whereas in single quotes no substituition
  - s="H"; echo "$s"; echo '$s'
  - Output:
    - H
    - $s <-- not substituted directly printed
- read – user inputdon
- stdin, stdout, stderr
- Input redirection :  <
- output redirection : >
- >> : append
- >file.txt - this will empty the file. Clear the file
- ./file.out > output.txt
  - Store output of file.out in output.txt
- 2> : add error in output.txt
- 2>> : append error in file
- &> :
- cat << EOF
  - Create and add content in file till EOF is typed
- Ctrl + r : search commands previously used


HW:

Create a script and try redirection?

Searching, Grep, Cut <-- Master (find, grep)

**05/02/2025**

- Reach top 10% in course : 10 marks ++
- Linux lauched in 1991.

**06/02/2025**

- Echo $SHELL
- Pstree : print process tree
- Echo $$

- rbash : restricted bash
- Sudo apt update : only checks if upgrades available
- Sudo apt upgrade : upgrades the packages
- Curl and wget : upload download or working with browser websites
- apt : remove, install, clean, update advanced package tool
- dpkg : package manager for Debian
- history –c : clears the history of that terminal
- Nautilus : opens the directory of path specified
- Top : task manager of linux
- $$ : process id of terminal
- Kill : kill the process
  - Kil –9 process-id : instant kill
- Use & to run in background
- Systemctl :
  - systemctl --type=service --state=running | grep –i "time"
  - systemctl stop bluetooth.service - stops the service
    - Stop can be replaced with status, enable, remove, disable, start,etc
  - First enable then start
  - Systemctl status service_name
  - Systemctl list-jobs: jobs scheduled
- Wlp :
- 01/01/1971 - start of time
- 1991 – linux

HW :

- RTC – real time clock
- NTP – network time protocol

**12/02/2025**

- $$ - shell id
- Locate sh : print all shells
- Snap – store
- :.,+10d – delete current + 10 following line
- Man , help, info

- Delete without rm
    - \>/home/parth/game.tar
    - Empty game.tar
- Systemd is faster than init
- Ps –aef : way of printing processes
- Ssh – secure shell
    - Systemctl list-units or systemctl list-jobs

**13/02/2025**

- LKM – Linux kernel modules
- PAM, SELinux, ZLIB, OPENSSL

- MAN – Manual pages
- Lsmod, insmod, bsod
- Components:
  - CPU – compute
  - RAM – Store
  - HDD/SSD - Pesistence (Long term storage)
  - Wlp – network
- File System used:
  - ext4 – Ubuntu
  - ntfs – Windows
- In **UEFI**. **Partitions info is scattered** whereas in BIOS, it is at one place. That is why, UEFI is now in use as it is easy to access and get info for reading and writing on particular partition
- SWAP – virtual buffer for linux
- UNetBootIn
- compgen –A command ls:
  - Find command starting with ls
- gcc : GNU C Compiler
- llvm – low level virtual machine
- Implicit conversion:
  - Int x='z';
    - x will be 113
- == won't work if type is different even if value is same
  - double x=1.1 != float x=1.1
- Compiling c program:
  - **gcc –Wall** name_of_file**.c -o** name_of_exe
  - clang is a compiler
  - Clang error diagnostic is much better than gcc
- hostname – gives hostname
  - hostnamectl set-hostname <name_to_give>
  - hostnamectl – all details print
  - cat /etc/hosts
    - Name of addresses
  - hostid : id of host
- Ip address:
  - Values from 0 to 255
  - Each _ has 2 bytes

- o _._._._ : ipv4
- o _._._._._._._ : ipv6 : 2^128 (2 bytes * 8 places * 8 bits)
- o _ is in hexadecimal in ipv6c
- o ::1 for loopback
- For getting address of a website:
  - o host <address_of_website>
- wl : wireless
- en : ethernet
- rx : recieve
- tx : transmit
- Detail about domain in terminal:
  - o whois <domian/address>
- Package manager – dpkg and apt

**15/02/2025**

- Mingw : C++ compiler for windows
- WSL : windows subsystem for linux
- wine : run windows app on unix and linux
- $$ : process id
- Virtualisation
  - o Compute Virtualisation :
    - ▪ process scheduling
  - o Store virtualisation:
    - ▪ Virtual memory
  - o Disk virtualisation:
    - ▪ Ex : disk partitions
- Lshw:
  - o For network:
    - ▪ lshw –class network : returns all hardware info related to "network"
  - o For disk:

- - lshw –class disk –class storage
- SATA – serial advanced technology attachment
- SCSI – small computer system interconnector
- PoE : power+network through ethernet cable
- Ifconfig : manage network interface
  - nmcli – command line interface for network manager
- Ethtool – query or changes network devices
- Finding info related to domain: like registrar
  - whois cisco.com
- Ip : internet protocol
- vlan : partition traffic in switch
  - Virtually, 32 ports of switch is divided into 8 ports or 10 ports and so on…
- Ifconfig
  - Show recieved and transmitted data
- Iwconfig : ifconfig for wireless
- lsof : list open file
- Last : return last user logged in

**HW:**

1. Who maintains utils between ubuntu and windows?

**19/02/2025**

- MAC – physical - 48 bytes
- IP – Logical- 32 bytes
- Cve : common vulnerability enumeration
  - cve.org : website for searching
- DNS : Domain Name System
- nslookup : query internet name servers interactively
  - Command example:
    - nslookup <domain-name>
- dig domain-name
- Dig +trace <domain-name>
- Checking domain:
- dnsenum –r iitjammu.ac.in : enumerate
- Dnsrecon : scanning and enumeration tool
- If forgot password of universal domain:
  - add record in dns

- iitjammu.ac.in
  - Domain-name
  - A - IP
  - MX – mail server
  - NS – name server
  - TXT – domain ownership


**20/02/2025**

- cp –p  : copy
- diff <file1> <file2>
  - Check difference and print those lines
  - <Line_number in file 1> (c/m) <line number in file 2>
    - < : removed
    - < : added
- cmp : tells difference in bytes
- Ctrl + G : show file name
- iostat : usage show at an instant of cpu
- Whereas top show real time
- History –c : clear current shell command history
- Package manager : apt and dpkg
- Netstat : stat of network
  - Tunapl : way of using all flag
  - -t : tcp
  - -u : udp
  - -n :  named
  - -a : all
  - -p : program
  - -l : listening
- ps –aef : print processes running in aef format
- Https port : 443
- DNS port : 53
- Socket – ip + port
- Diff mode in vim : -d
  - Open using:
    - vim –d f1.txt f2.txt
- Systemd introduced parallel processing

- - Parallelly process scripts of system
  - Init run these script sequentially and take too much time to boot
- Check running ssh
  - systemctl list-units | grep "ssh"
  - Type = service
  - State = running
- Ping of death : too many ping which will increase traffic
- Group : /etc/group
- Users :
- Password : /etc/passwd
- To get old hostname :
  - Cat /etc/var/syslog* | grep "hostname"

**05/03/2025**

- Diffrence between for commands
  - Which – location of executable command first occurence in paths in $PATH
  - Locate – find files by name
  - Whatis – one line description of command
  - Whereis – locate binary, source, and manual page
- Systemd is faster due to parallelization
- Process id of shell - $$
- ~ : HOME directory symbol
- Adding a path in $PATH
  - export PATH=$HOME:$PATH
  - Add home directroy before others
  - Add temporary for current shell only
  - For permanent add in ~/.profile or ~/.bashsrc
- Compgen is not a binary. It is builtin in bash
- Locating shells all : **cat /etc/shells**
  - Echo $SHELL : current shell
- Bash completion file contain all necessary stuff that is needed to complete command when pressed tab or use compgen
  - Many commands which are bash builtin
  - Open using "**vi /usr/share/bash-completion/bash_completion**"
- List file system:
  - Sudo fdisk –l
  - Cat /etc/fstab

- o df –T
- Echo $_ - last command last string by delimiting with space
- env
  - o Run a program in a modified environment
- Printenv
  - o Print all environment
- !! - show and execute last successful command
  - o !ls - lastcommand starting with ls
  - o !_ - last _ command
- /dev/null - global sink
- &> /dev/null - execute command without displaying
- Cd -
  - o To previous dir
- Cd ~
  - o ~ directory
- Cd ..
  - o Parent dir
- List zip info
  - o Zcat –l zip_file
  - o Zipinfo –l zip_file
  - o Gunzip –l zip_file
- head +10 Linux-Class.pdf | tail +5
  - o First, first 10 lines then last 5 lines
    - ▪ Total 5 lines
  - o Head –1265 testdata.txt | tail +1260
- > : stdout
- 2> : stderr
- &> : both out and err
- -v : print line by line script
- -x : expand variable if possible
  - o Like echo "$USER" ki jagah -> echo "himchu"
- Ldd – print shared library
- /etc/{passwd/shadow/group}


HW:

- When we press tab what gets completed?
  - Bash Completion File

**06/03/2025**

- Command -options argument
- Find:
  - find where options arg
- ` ` substitutes the command with output then echo
- tee : print as well as append output in file
- $
  - $  yes : command
  - $yes : variable
- -nt : newer than
- -ot : older than
- & | : boolean operator
- && || : compare
- Cron
  - Min
  - Hr
  - day_month
  - Month
  - day_week
  - USER
  - Command

- 00 * 29 02 *
- /etc/crontab : system wide (File)
  - Have to mention user
- Crontab –e : user specific  (Command)
  - So in crontab –e = we can write commands directly after the time while in system wide crontab, we need to specify the user after date and time and then write command
- w : shows all users
- who : current user
- /etc/{group / passwd / shadow}
- Gobuster – scan dir

**20/03/2025**

- Convert image to pdf
- Merge Multiple/Compress/Remove Specified pages pdf into one using pdftk
- Compress Image & merge image & pdf

26/03/2025

• MyPDF – Homwerk

• Regular Expression ⬚ Context Sensitive Grammar ⬚ Context Free Grammar ⬚Regular Language (A linux command is an example of regular language)        {a⬚b means b is a subset of a}

Symbols in Linux (same as those that we studied in ppl):

1. * = Kleene star = 0 or more characters

2. + = 1 or more characters

3. \s = Non printable characters = spaces, tabspaces (whitespace characters (spaces, tabs, newlines, etc))

4. \S= Printable Characters (Matches any non-whitespace character, not all printable characters)

5. \d= Digits

6. \D= Non-digits

7. \b= matches word boundary and alpha numeric

8. $=string should end with this (eg - $ab means that the string should end with ab)

9. { } = {min,max}

10. [a-Z] = match from a to Z

11. ^ = not/ exluding (so, [^a-Z] means excluding a-Z)

• Creates scripts to validate pan, pin, ifsccode, date, ipv4 and ipv6 (and their short forms),mac address, email

27/03/2025 https://chatgpt.com/share/67e53ef8-c484-8010-a40a-acace4a5c38f

• Sed (Always have backup as a lot of data can become corrupt)

Sed always prints the output but if we write -n after sed, then it won't print all the lines

1. sed 's/A/B/' - = Due to '–' , takes in input till user exits with Ctrl+C, and in every input replaces A with B and shows output

2. sed 's/A/B' filename.txt =replaces first occurrence of A in eachline with B  in filename.txt without opening it.

3. sed 'ks/A/B' filename.txt – replaces the first occurrence of A with B on k'th line

4.  Important - sed 's/Jammu and Kashmir/J & K/' file.txt = will not correctly replace Jammu and Kashmir with J & K but instead write JJammu and KashmirK. This is because & is being treated as a special character.

To fix this we will write 's/Jammu and Kashmir/J \& K/' file.txt, as \& will make sure that & is treated as a literal and not special character

5. sed -n '/^ *$/p' filename.txt = Print all empty lines

6. sed -r '/^ *$/d' filename.txt > newfile.txt =Deletes,prints all empty lines and then transfer to newfile.txt without modifying the original file (-r is optional)

7. sed -i '/^ *$/d' filename.txt = permanently deletes empty lines in the original file and prints the new contents of the file

8. Important sed -r '/^ *$/p' filename.txt = Means that first it will print all the original lines that it reads and then all the empty lines. If we write -n then nothing will be printed except the empty lines

9. sed '5d' filename.txt = Delete 5th line ($d will delete last line)

10. sed '5d;10d' filename.txt= Deletes 5th and 10th lines

11. sed '3,5d' filename.txt = Deletes all lines from 3 to 5 (Not permanently but just displays the remaining lines)

12. sed '5a\nLine1\nLine2' filename.txt =

   a. 5a ⬚ will append after 5th line

   b. \n ⬚ enables that when Line1 will be appended after 5th line, then Line2 after Line1 can be appended as a new line

13. sed '$a\Line1\' =

   a. $a will append after the last line

14. sed -r 's/\b([a-z])/\U\1/g' filename.txt =

   a. -r ⬚ makes the sentence regular expression

   b. \b([a-z]) ⬚ checks the word boundaries for lowercase instance

   c. \U\1 ⬚ makes that letter uppercase

15. Let's say we have a file with names and their user ids like 2023ucs0112, then to capitalize all the user ids, we'll write the function

sed -r 's/([0-9]{4})([a-z]{3})([0-9]{4})/\1\U\2\3/g' filename.txt

   a. ([0-9]{4})([a-z]{3})([0-9]{4}) ⬚ This is the regex string that we'll search for

   b. \1\U\2\3 ⬚ \1 is the first group of 4 numbers , \2 is the second group of 3 letters and \U before it means to capitalize it, \3 is the third and last group of 4 letters

• AWK- ($0 is used to print all the columns)

1. ls -lrt | awk '{print $6, $7, $8}' = prints the 6th,7th and 8th column of ls-lrt

2. ls -lrt | awk 'BEGIN { OFS=" | " }{ print $6, $7, $8 }' = prints like above but joins the columns with whatever symbol defined in OFS (output field separator)

3. cat /filename.txt | awk 'BEGIN { FS=" "; OFS=" | " }{ print $6, $7, $8 }' = FS is also known as delimiter, i.e. it will split wrt FS but by default is Space.

4. awk " BEGIN {print "welcome" ; FS=":"} {print $1,$6} END {print "Bhag jao"}" =

   a. First comes the BEGIN block, where we can print some message and define the delimiter(FS)

   b. Then comes the process block

   c. And lastly comes the END block where we can end with a message

**02/04/2025**

- awk ' pattern {action to do} ' file
  - awk '{sum += $1} END {print sum}' file
    - Computation to do in {}
    - Also outside {}, we can add condition
    - awk '$2 > 25 {print $1}' data.txt
      - See order carefully
- sed '%s/str1/str2/p' file
  - -r : regex
  - -i : inplace
  - -n : quiet

- P: print
- D: delete

- Latex:
    - Documentclass : article, report, presentation, etc.
    - \begin
        - Write in between your content
    - \end
    - \section
    - \subsection
    - % : comment
    - maketitle
    - New chapter - \section
    - \noindent
    - Ordered list
        - \begin{enumerate}
        - \item Apple
        - \item Mango
        - \item Grape
        - \end{enumerate}
    - Unordered
        - Replace enumerate with itemize
    - Adding lib or packages
        - \usepackage
            - \usepackage{enumitem}
    - Using enumitem we can change symbols for number
    - Fro images : use graphicx
        - \includegraphics[option/manipulation with imagr]{path_to_image}
        - Adding image with caption
            - \begin{figure}
                - \centering
            - \end{figure}
    - For making any thing
        - \begin{}
        - \end{}
        - In {}, write that
    - Table in LaTeX:
        - | c| c | c | c |
        - and \hline in alll rows

- Referencing in latex
  - \ref
- Math equation
  - \frac{}{}
  - {\int} form equation
    - {\int}_0^1

**09/04/2025**

- Vunerablity : exploits
- OWASP : report vunerablility
- CAPTCHA - Completely Automated Public Turing test to tell Computers and Humans Apart

**24/04/2025**

[github.com/rks101/egnet](github.com/rks101/egnet)

- SSL – encrpyt data between user browser and website
  - Encryption layer
  - Secure sockets layer
- HTTP – Hypertext
  - GET – recieve
  - PUT – send/upload
  - HEAD – header information
  - Multiple commands/requests
  - Asynchronous execution
    - Doubt
- Curl
  - Transfer through URL
  - Curl –v google.com
    - Request infor about website
  - -v : verbose
    - More detailed
- sslscan iitjammu.ac.in
- Only use latest version of ssl and disable others
- Dnsrecon –d iitjammu.ac.in
- *.iitjammu.ac.in
  - Wildcard ssl
- If http certificate expired, then only https will open and on opening site it will redirect to https if redirect enabled. And vice versa
- If page not opening, see error
  - NX – issue related to dns or else
  - CERT – issue related to certificate
    - On advanced options, if option of redirecting is available then certificate is expired
    - If not, then that url does not exists in entry
- Digicert – info about certificate of some website
  - [https://www.digicert.com/help/](https://www.digicert.com/help/)

# END OF LINUX CLASS :)