1. **Introduction to Linux (Ubuntu )**
   * 1. **What is Linux**
     2. **Why Linux**
     3. **Whose for Linux**
     4. **Only Basic**
     5. **Myself**
     6. **History of Linux**
     7. **Distros of Linux**
2. **Download and Install Linux**
3. **Desktop Environment**
4. **Terminal**
5. **Working with Directories**
   1. **“Man”**  
      Stands for Manual, is give manual of any command when type before any command e.g: **“man ls”**
   2. **“pwd”**  
      stands for print working directory, it will show where we are
   3. “**cd”**  
      stands for change directort, it is used to change directories (absolute path vs relative path)
   4. **“ls”**  
       it list directory Contant
   5. **Options**  
       **“-a”** for all, options come after the commands and they change output format e.g. **“ls -a”** list all files and folder including hidden files and folder. (if files names start with colon**”.”** its hidden in linux), there are many other options **“-l”** for long, it gives info in details, we can also use multiple option with single hyphone **”-”** such as **“ls -alh”.**
   6. **“clear”**  
       it moves up the corsur line to clear screen.
   7. **“mkdir”**   
      stands for make directory, it create a new folder e.g. **“mkdir name-folder"** . To create sub directory give absolute path e.g **“ mkdir Test/newfolder3”.** you can create parent and child folder with option **“-p”** e.g. **“mkdir –p folderin/folder”**
   8. **“rmdir”**   
      stands for remove empty directories, to remove directory containing files or folder we need to add option **“-p”** e.g. **“rmdir -p Test/folderin/folder”.**
   9. **“cd ..”**   
      to go up directory.
6. **Working with Files**
7. **“file”** it determinate file type, e.g. “file chrome.deb”   
   R: files in Linux are case sensitive , and directories are also files in Linux but special type
8. **“touch”** it is used to create Empty-files/access, “touch file1.txt” or multiple files creation “touch file2.txt file3.txt” .
9. **“rm”**   
   used to remove files and empty folder, “rm file4.txt” or for folder “rm -r folder4” for multiple files with confermation “rm -I file1.txt file2.txt” type yes to dell.
10. **“cp”** it copy files and folders, “cp file.txt newname” or cp file.txt /home/shah/new-location new-name" “cp –r test newname” copy folder
11. **“mv”** used to move and rename files/folder, “mv file.txt file2.txt” rename file, “mv file.txt /home/shah/Downloads” move file, “mv file.txt /home/shah/Downloads/file2.txt” move and rename file
    1. Multiple cammands can given at Once by sperating them with semicolon”;”
12. “tar”
13. “cut”
14. **Working with Content**
    * 1. C1:”head” output files, “head file.txt” print first 10 lines of file, “head -5 file.txt” prints first 5 lines
      2. C2: “tail” output file’s last 10 lines,
      3. C3: “cat” concatinate or print whole file, “cat file1.txt file2.txt file3.txt” prints 3 files in series, “cat file1.txt file2.txt file3.txt >newfile.txt” instead of printing it will put all data to new file.    
         To creat file and Enter data: “cat >file1.txt”   
         To copy file content to other file of new file: **“cat file10.txt > newfile.txt”**
      4. **“echo”**   
         puts data in files. **“echo This-is-file-data >file.txt”** puts txt in file.txt.
      5. **“echo “The text to print” “  
         It will print typed text interminal**
      6. **“more”**   
         used to see large files page by page ,
      7. **“less”** used to see large files page by page from tail.
      8. **“grep”**  
         it is used to find words in a file e.g **“grep any-word file-name.txt”**
      9. **“sort”  
         used to sort files output “sort file-name.txt”**
      10. “uniq”  
          used to del same lines in a file , “uniq file.txt”
      11. “tr”  
          used to translate
      12. “env”
15. **Linux File Structure**
    * 1. **“cd /”**  
         to go to root directory.

**/bin** = user Binaries  
**/boot** = Boat Loader files  
**/cdrom** = optical drives   
**/dev** = Devices drives shows here.  
**/etc** = Configurations files of install programs   
**/home** = all username files and data  
**/lib** = System Libraries  
**/media** = Removable Devices  
**/tmp**  
**/snap**  
**/usr** = shared files b/w users  
**/var** = sys logs and   
**/swap** = swap memory data ( Virtual RAM )

1. **System Information**
   * 1. **“uptime”**  
        gives uptime users login and cup load
     2. **“free”**  
        gives memory usage
     3. **“ps”** show current process, **“ps -A”** show all processes
     4. **“top”**   
        processes shows in runtime, **“htop”** show processes in batter graphics
     5. **“ls\_release -a”  
        give info about OS version**
     6. **“su” or “sudo bash”  
        to create super user**
     7. **“whoami”  
        to check current user**
     8. **“su username”**to go back to any-user/switch user e.g. **“su Shahzad”**
     9. **“sudo useradd username”** and **“ sudo passwd username”**to add/create user name:username and then seeting pass
     10. **“sudo userdel username”**to delete user e.g**. “sudo userdel user1”**
     11. **“sudo groupadd group-name”**to add group e.g**. “sudo groupadd IT”**
     12. **“sudo groupdel group-name”  
         to delete group**
     13. “echo $SHELL”  
         to check working shell type
     14. “id”  
         it give more info about user account
     15. “lsof”   
         give list of open files and details,  
         “lsof -u user-name”  
         to check open files aby a specific user, “lsof -u root”
     16. “history”  
         give history of given commands  
         “history 10”  
         to check last 10 commands
     17. “ssh ip-address”
     18. “ssh -keygen”
     19. “awk”
     20. “df”  
         to check disk space, “sudo df -h”  
         “sudo du -hd 1 /var”
     21. “sudo -I" or “sudo bash”  
         to login as root user
2. **Networking**
   * 1. **“ifconfig”  
        interface config,   
        “config -a”  
        dislays all interfaces**  
        “ifconfig -s”  
        displays shortlist of interface
     2. **“ip address”**
     3. **“ip link”  
        display link layer devices**
     4. **“netstat -a”  
        “netstat -at”  
        display available tcp ports**
     5. **“nslookup domain-name/ip-add”  
        “nslookup google.com”, “nslookup 202.123.123.22”**
     6. **“ping”**
     7. **“curl”**
     8. **“iptables”  
        “service iptables stop”**
     9. “ip route”
     10. “dig google.com” or “dig @8.8.8.8 google.com”
     11. Netplan  
         it is a config file with has all network interface configurations  
         To configure netplan, save configuration files under “/etc/netplan/config.yaml”   
         for config check link: [netplan.io](https://netplan.io/examples)   
         Format:22.04  
         For
     12. IP Static for CentOS  
         “ifconfig” check interface name and IP add
3. **Linux Package Manager**
   * 1. **“sudo”** stands for superuser do, it allow to do upper privilege things by entering password
     2. **“sudo apt install net-tools”** to install networking tools
     3. **“sudo apt update”** check updates for packages
     4. **“sudo apt upgrade”** it install updates
     5. apt stands for advance packaged management tool
     6. **“sudo apt search zip”** it search for repository for zip files
     7. **“sudo apt install zip”**   
        it install app zip.
     8. **“sudo apt remove zip”**   
        it uninstall zip.
     9. **“apt-get”**
4. **Text Editor**
   * 1. Nano
        + 1. **“nano file1.txt” >now edit >save or discard**
     2. Vim
        + 1. **“vim file10.txt”** > to edit to, to insert mode by pressing **“I”** and come out of insert mode by clicking **“Esc key”.**
          2. **“:w”**to save changes
          3. to quit **“:q” ,”:qw”** to write and quit.
          4. to quit discarding changes **“:q!”**
5. Labs to Practice Linux
   1. Online lab [Link](https://kodekloud.com/courses/labs-devops-pre-requisite-course/?utm_source=devopslabs&utm_medium=YouTube&src=ytb_fcc_devops_labs)
   2. WSL
   3. Linux VM
   4. Linux Installation
6. Files Permisson
   1. “chown”  
      used to change owner/group of file/folder  
      “sudo chown root file.txt”
   2. “chmod”
7. Shell scripting
8. Git Commands