BASIC USE OF GNU/LINUX UBUNTU

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AGENDA FOR THE SESSION

- Myths about Ubuntu
- Ubuntu and FOSS
- GUI and Compiz effects
- Keyboard Shortcuts
- Networking and browsing
- File Structure
- Types of users
- Terminal

- Basic Terminal Commands
- Package Management
- PMS on Ubuntu
- VIM
- Useful VIM commands

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MYTHS ABOUT GNU/LINUX

- Not User Friendly
  - Let's see...
- Can't open "some" files
  - Windows does not open a single GNU/Linux file, GNU/Linux opens tons of Windows files !
- Only for geeks
  - GNU/Linux makes you a geek !

- Installing it is difficult
  - Much easier and flexible than Windows !
  - Seems difficult Because you want "dual" boot
  - Windows doesn't support dual boot mode, GNU/Linux does!

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UBUNTU

- ## What is Ubuntu?

  - Ubuntu is a "GNU/Linux Distribution".

- ## What is Linux?

  - Linux is a "kernel".

- ## What is Kernel?

  - OS is made of different parts , & 'kernel' is just one of them ! As simple as that !!

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UBUNTU

- What is OS?
    - OS is a program , just like that of "hello world" .
    - Actually, OS is collection of thousands of programs.
    - It is the controller , which decides how all the resources(like the monitor , keyboard , memory , hard-disk , processor....)are to be used & it maintains a wonderful coordination among all these.
- OS is a software . True or False ?? (*TRUE*)
- So, computer = Hardware + Software & this Software is nothing but OS .

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UBUNTU

- Kernel is a program . True or False ?*(TRUE)*

- Ubuntu is a OS . True or False ?*(TRUE)*

- Linux is a OS. True or False ?*(FALSE)*

- Ubuntu(CANONICAL) is the most popular "GNU/Linux Distribution" .

- Others are : Fedora(Red Hat) , Debian(*Community-driven)* , OpenSuse(NOVELL).... & the list goes on .

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LINUS TORVALDS & TUX

GNU/LINUX OS

UBUNTU

- What are the common things among Ubuntu, Debian , Fedora & OpenSuse ??

  - All of them are OS .

  - All are "GNU/Linux Distributions" i.e. all these OS's have used one same program as their "kernel" & i.e. Linux .

  - Most importantly , all of them are FOSS(Free and Open Source Software)

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WHAT IS FOSS??

- It stands for Free & Open Source Software
- It has the following features :
  - the user must have the FREEdom to do anything with the software.
  - change it to his needs.
  - use it in his project without any need to ask the person who developed that software.
  - Be "allowed"(I mean , LEGALLY) to solve the bug in it etc etc..

FREE AS IN FREEDOM

RICHARD STALLMAN'S CRUSADE FOR FREE SOFTWARE

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WHAT IS FOSS??

- Now for all this "FREE"dom to be given, obviously the user must have the **"source-code"** of the software, which is given by the FOSS !

- The software exactly against all these is "Proprietary" Software.

- Patents vs "FREE"dom.

- Note: Free Softwares & Open-Source Softwares do have few differences among them , which we would try to understand later some time. FOSS is a way of mentioning both "free software" and "open source" without taking a side on that philosophical disagreement.
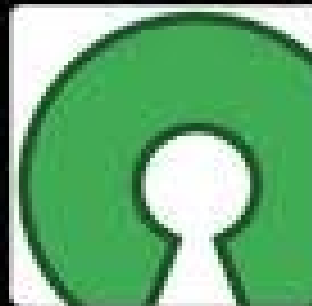
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WHAT IS FOSS ??

RICHARD STALLMAN ON UBUNTU

- Richard Stallman, the hero of Free-Software movement, doesn't support Ubuntu & many such GNU/Linux Distros.

- This is bcoz Ubuntu does have a few non-free(ie FREEdom denying) softwares .

- Richard, in an email to us, argued: Ubuntu is a big advance over Windows , but if falls far short of the goal of the FREEdom .

- For more details, visit : gnu.org/distros

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WHAT IS CoFSUG??

- <u>CO</u>ep <u>F</u>ree <u>S</u>oftware <u>U</u>sers <u>G</u>roup.

- Google Group

- Its intentions

- Its activities & role

- Join it to know it..!!!

- https://groups.google.com/group/cofsug?hl=en

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What is 'GNOME'?

- Basic OS is just like the physical terminal..

- We can do all the operations using command line

- It is a 'graphical user interface'(GUI) that runs on top of a computer operating system.

- "GNU Network Object Model Environment.

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COMPIZ EFFECTS

KEYBOARD SHORTCUTS

Ctrl + Alt + T   Terminal

Mod4 + w (mod4 = "super" key) Initiate Window Picker

alt + F10   toggle maximize window

alt + F9   minimize window

alt + F5   restore window

alt + F4   close window

alt + F7   move window

alt + F8   resize window

alt + F3   shaded state

alt + space   windows menu

alt + "1/2/3/4/.."   switch to that tab

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KEYBOARD SHORTCUTS

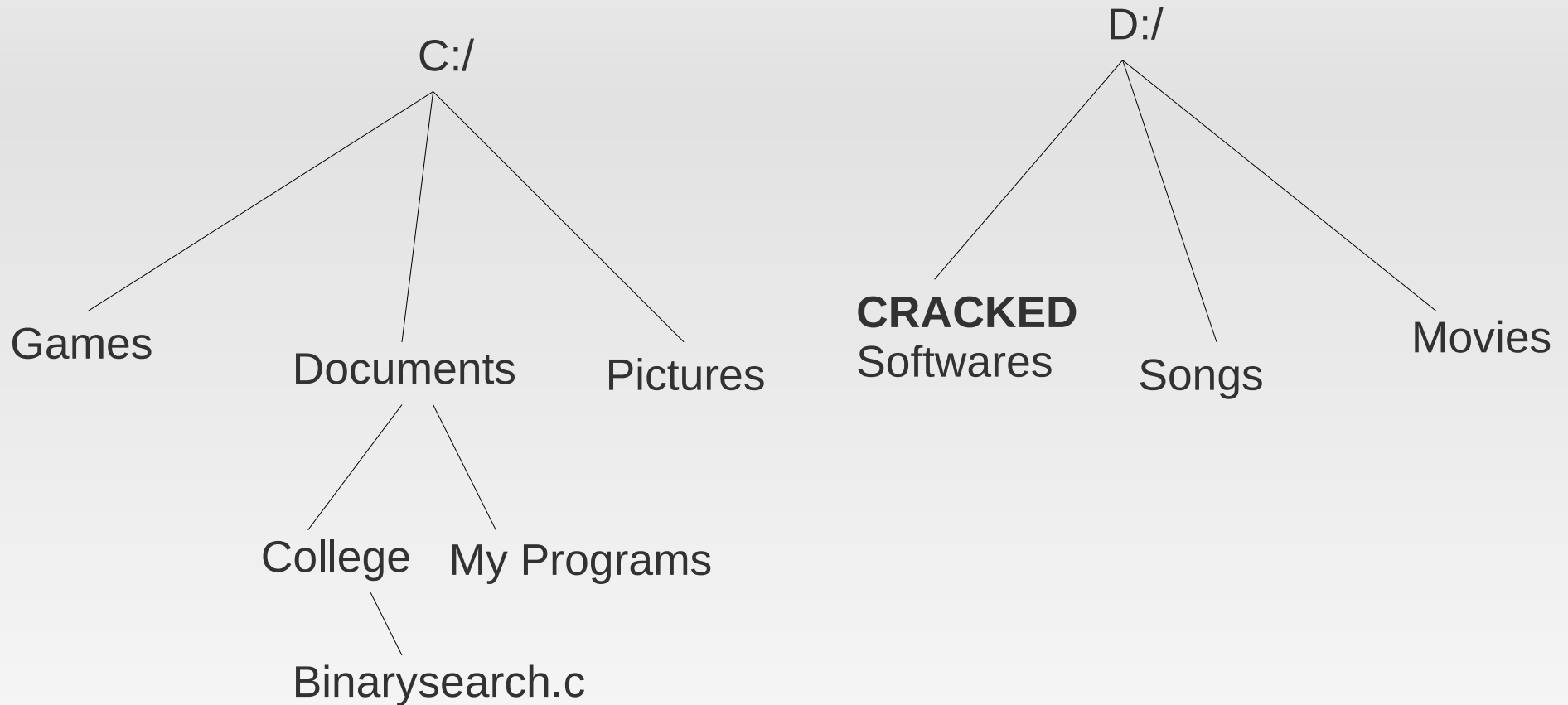|	
Ctrl + X	cut
Ctrl + V	paste
Ctrl + A	select all
ctrl + alt + delete	Shutdown Menu
ctrl + alt + l	lock screen
Terminal :	
Ctrl + Shift + '+'	zoom in
Ctrl + -	zoom out
Ctrl + 0	original size

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NETWORKING

- Network connection through :
    - LAN
    - Wi-Fi
    - Bluetooth
- Network Proxy
- Useful Networking softwares
    - Firefox
    - Downthemall
    - Empathy Chat manager

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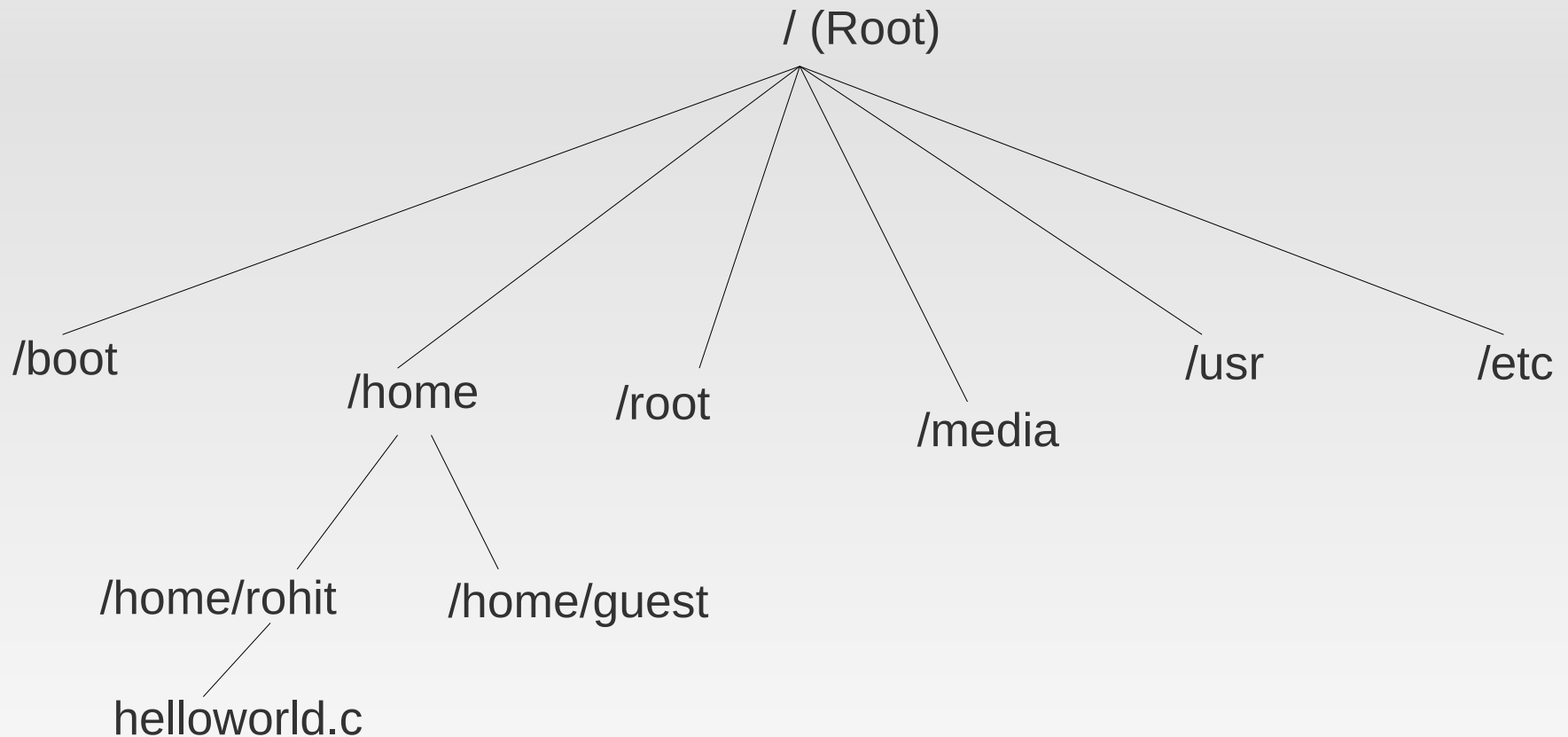# FILE STRUCTURE IN WINDOWS

Forest Structure in windows

Path : C:\Documents\College\Binarysearch.c

FILE STRUCTURE IN LINUX

Tree Structure in Linux

/ (Root)

/boot

/home

/root

/media

/usr

/etc

/home/rohit

/home/guest

helloworld.c

Path : /home/rohit/helloworld.c

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DIRECTORIES IN /(ROOT)

- /bin   Important *bin*ary applications
- /boot   B*oot* configuration files
- /dev   The *dev*ice files
- /etc   Configuration files, startup scripts, *etc*...
- /home   Local users' *home* directories
- /lib   System *lib*raries
- /lost+found   Sprovides a *lost+found* system for files that exist under the root
- /   Root directory

DIRECTORIES IN /(ROOT)

- /usr   Applications and files that are mostly available for all *user*s to access

- /var   V*ari*able files such as logs and databases

- /mnt Mounted filesystems

- /opt   Provides a location for *opt*ional applications to be installed

- /proc Special dynamic directory that maintains information about the state of the system, including

- /root   Root user home directory, pronounced 'slash-root'
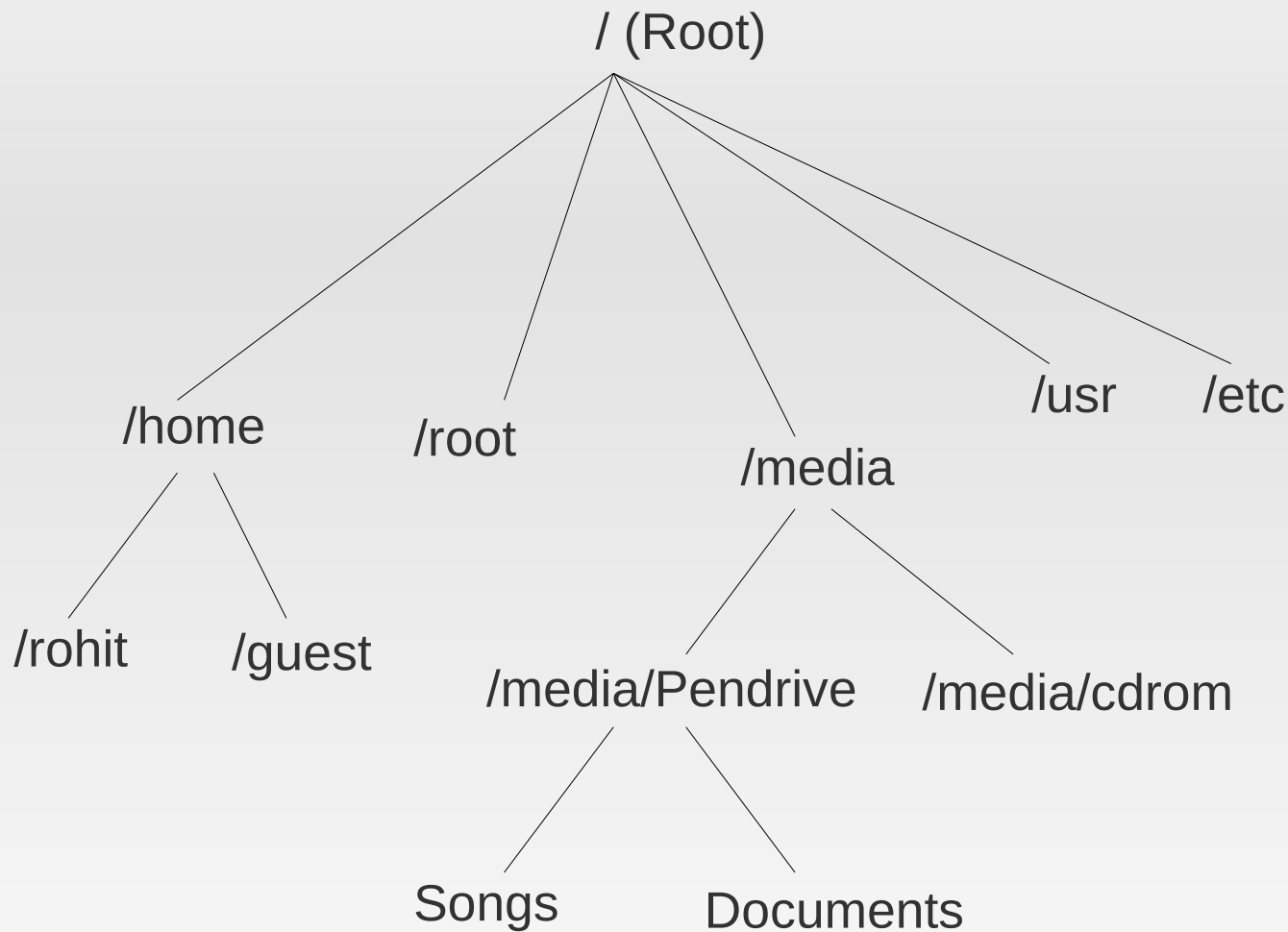
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DIRECTORIES IN /(ROOT)

- /sbin   Important system binaries

- /sys   System file

- /tmp   Temporary files

- /media   Mounted (loaded) removable media such as CDs, digital cameras, etc...
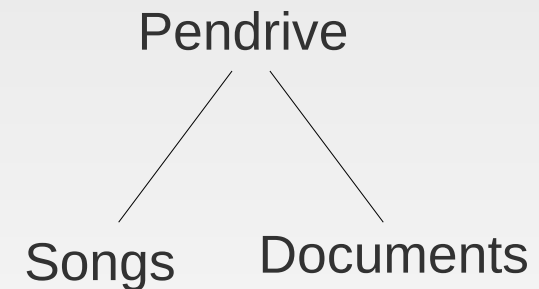
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NAMESPACES IN LINUX

- File names and folders are case sensitive in linux.
  - eg. Foss and FOSS are different names in linux **unlike windows**.
- Hidden files
  - Any folder or filename with preceding .(dot) becomes a hidden.
  - eg **.college.c**
  - Use ctrl + H to view / hide hidden files & folders.

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MOUNT IN LINUX

/ (Root)

/home /root /media /usr /etc

/rohit /guest

/media/Pendrive /media/cdrom

Songs Documents

Tree Structure for Pendrive

Pendrive

Songs Documents

Path for Songs : /media/Pendrive/Songs/

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SUDO COMMAND

- There are three types of Users :

  - Normal User   Has limited powers. Can use the system but not administer it. e.g. student User in FOSS Lab

  - Sudo User   Has variable powers. Can be allotted complete administration power by the root user...

  - Root User   The owner of the computer. Root has all the powers to make any change in the computer.

- Note : refer '**man sudo**' for more info.

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TERMINAL

- WHAT IS GNOME Terminal?
  An application used for:
    - Executing commands.
    - Used to run other applications.
  Types of terminal:
    - Physical Terminal
    - Virtual Terminal
- Useful Terminal shortcuts
    - Ctrl + Alt + T (starting the terminal by deafult)
    - Ctrl + L (clear the screen)
    - Ctrl + A (go to the start of the command)
    - Ctrl + E (go to the end of the command)

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TERMINAL

- Terminal shortcuts continued..

  - Ctrl + U (delete everything before the cursor)
  - Ctrl + D or exit (exit the terminal)
  - Ctlr + Shift + T (start another tab in same window)
  - Ctrl + Alt + F2...F6 (go to physical terminal)
  - Ctrl + Alt + F7 (go back to gnome desktop)
  - Ctrl + R (Reverse search)

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BASIC TERMINAL COMMANDS

- **pwd** : to print name of current/working directory
- **ls** : to list current directory contents
  - ls dir_name: displays contents of the directory
  - ls -a : display all files
  - ls -l :long listing format
- **man** : display manual page of give command
  - man ls
- **cd** : Used to navigate in the file-system tree.
  - cd dir_path
  - cd ..   goto parent directory
  - cd -   goto previous directory
  - cd   goto home directory

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BASIC TERMINAL COMMANDS

- **mkdir** : makes a new directory in the current directory
  - mkdir dir_name
- **rm** : delete a file
- **rmdir** : remove a directory
- **mv** : move a file (cut) Also used to rename a file .. so no rename command exists
  - mv source_filename destination_filename
- **cp** : to copy file from one location to another
  - cp source_filename destination_filename

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BASIC TERMINAL COMMANDS

- **date** : displays today's date and time
- **time** : (If date displays both date and time what will time command display?? find out..!!!)
- **cal** : calender
    - Cal: displays current month calender (try out cal -3 and cal -y 1992)
- **locate** : searches for the given pattern in whole file tree
    - locate <pattern>

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BASIC TERMINAL COMMANDS

- **grep** : it searches the given string in the specified file(s) and prints the lines of the files containing the string

    - grep <pattern> file1 file2 file3

- **whatis** : it gives short description of each manual page

- Running Applications in terminal

- Firefox, gedit, gnome-terminal, nautilus, ooffice, google-chrome, vlc

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TRICKS IN TERMINAL

- Using <tab> for auto-completion of commands

- Using special character '*'

  - ***.c**   all files with names ending in .c

  - **ubu***   all files with names starting with 'ubu'

  - **u*.c**   all files with names starting with 'u' and ending in '.c'

  - *****   all files

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Package Managment

- What is Package Management?

  - Package management is nothing but installing packages, removing them, upgrading them to latest version, and all such kind of things.

- In windows we just double click a .exe file and the s/w is installed!!

- Is this good or bad?

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Package Management

- Is there nothing like that in Ubuntu?

    - Yes there is , no there isn't!! And both are true.

- Get a .deb package , double click it, and that's it!

- Limitations to this method

- After all of that about .deb, basically what is a package?

- Ubuntu uses .deb packages.

- Other formats like .rpm (RedHat, Fedora) are also there.

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PMS ON UBUNTU

- There are 3 major Package Management Systems (PMS) on Ubuntu :

  - Apt-get

  - Ubuntu Software Center

  - Synaptic Package Manager

- There are others also like aptitude etc.

WHAT IS APT-GET?

- Let's see a demo.

- Apt-get is a command line tool, used for Package management. It stands for **Advanced Packaging Tool**.

- Two pre-requisites to execute apt-get commands :

  - Administrative Privileges (su and sudo)

  - Repositories (/etc/apt/sources.list)

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MORE OF APT-GET

- apt-get update
- apt-get install <package_name>
- apt-get remove <package_name>
- apt-get purge <package_name>
- apt-get upgrade

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GUI FOR PMS

- Ubuntu Software Center
  - Applications → Ubuntu Software Center
- Synaptic Package Manager
  - System → Administration → Synaptic Package Manager

VIM

- Advantages of using vim
  - Faster coding
  - Least use of mouse
  - Portable
- Vim has many modes, lets see two of them :
  - Insert mode
  - Command mode
- Two types of commands :
  - Ex commands
  - Vi commands
- Editing Buffer

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USEFUL VIM COMMANDS

- Vim filename   To open a file
- :q   To close a file
- :w <filename>   To save/ save as
- dd   To delete a line
- x   To delete a character
- yy   To copy(yank) a line
- p   To paste data
- :%s/source/dest   To Replace source with dest
- :<line_num>   To jump to particular line
- m<char>   To mark current line

USEFUL VIM COMMANDS

- u   To Undo changes
- Ctrl + R   To Redo Changes
- :set autoindent   To set auto-indentation
- :set number   To show line numbers
- /<pattern>   To search for particular pattern
- :set hlseach   Highlight all the matched patterns
- :set incsearch   Highlighting search while typing
- :!<command>   To execute Terminal Command
- r<char>   To replace character wid <char>

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USEFUL VIM COMMANDS

- ~/.vimrc file   this file gets executed before vim begins.

- vimtutor   It is an offline tutorial.

FEEL FREE TO CONTACT...

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- *BEST OPTION IS TO ASK YOUR QUERY ON COFSUG ITSELF & U WOULD GET APT REPLIES BY MANY SUCH FOSS-BELIEVERS !!*

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