

Weekly Report 3

Summary of Presentations

Exploring Desktop Environments

- Before Desktop Environments (DE), there was Command Line Interface (CLI).
- **Graphical User Interface (GUI)** - is a set of programs that allows a user to interact with the computer system via icons, windows, and various other visual elements.
- **Desktop Environment (DE)** - is an implementation of the desktop metaphor made of a bundle of programs running on top of a computer operating system, which shares a common GUI, sometimes described as a *graphical shell*.

Elements of a Desktop Environment

- **Desktop Settings** - consist of programs that allow you to make configuration changes to the desktop environment.
- **Display Manager** - allows you to choose between the desktop environment, and users.
 - Display Manager = Login Screen)
- **File Manager** - this program allows you to perform file maintenance activities graphically.
- **Icons** - is a picture representation of a file or program
- **Favorites Bar** - the window area that contains popular icons, which are typically used more frequently. It can be removed or added as desired.
- **Launcher** - this program(s) allows you to search for applications and files. It can also allow certain actions, such as start or open, to be performed on the search results.
- **Menus** - these window areas are typically accessed via an icon. They contain files and/or program lists as well as sublists of additional files and/or programs selections.
- **Panels** - are slim and typically rectangular areas that are located at the very top or bottom of a desktop environment's main window. They can also be at the desktop's far left or right.
 - Often contain notifications, system data and/or time, program icons, and so on.
- **System Tray** - is a special menu, commonly attached to a panel. It provides access to programs that allow a user to log out, lock their screen, manage audio settings, view notifications, shut down or reboot the system, and so on.
- **Widgets** - are programs that provide to the user information or functionality on the desktop
 - Are divided into applets, screenlets, desklets, and so on.
- **Window Manager** - these client programs determine how the windows (also called *frames*) are presented on the desktop.
 - Control items such as size and appearance of the windows
 - Manage how additional windows can be placed, such as either next to each other or overlapping

Different Desktop Environments

- **The GNOME DE** - default desktop in Ubuntu is GNOME 3 and is used by several Linux distributions, like Debian, Fedora, Red Hat, Enterprise Linux, and Oracle Linux.
 - Official GUI for GNOME3 is **GNOME Shell**
 - GNOME is part of GNU Project

- **The KDE Desktop Environment**
- **The XFCE Desktop Environment** - is a lightweight desktop environment that aims to be fast and low on system resources, while still being visually appealing and user friendly
- **The Mate Desktop Environment** - is the continuation of GNOME 2.
- **The Cinnamon Desktop Environment** - is a free and open-source desktop environment for the X Window System that derives from GNOME3 but follows traditional desktop metaphor conventions.
 - This is the principal desktop environment of the Linux Mint distribution.
- **The LXQT Desktop Environment** - is a lightweight Qt desktop environment.
 - Included in most Linux and BSD distributions
- **The Deepin Desktop Environment** - is the desktop environment of the Chinese Deepin Linux distribution.
- **The Pantheon Desktop Environment** - is the desktop environment created for the Elementary OS.
- **The Raspberry Pi OS Desktop Environment**

The Bash Shell

What is a shell?

- **GNU bash shell** - is a program that provides interactive access to the Linux system.
 - It runs as a regular program and is normally started whenever a user logs in into a terminal
 - Most Linux distributions use the bash shell as the default shell. Other shells exist like:
 - Tcsh Shell
 - Csh Shell
 - Ksh Shell
 - Zsh Shell
 - Fish Shell

Bash shortcuts | Command Editing Shortcuts

- **Ctrl + A** - go to the start of the command line
- **Ctrl + E** - go to the end of the command line
- **Ctrl + K** - delete from cursor to the end of the command line
- **Ctrl + U** - delete from cursor to the start of the command line
- **Ctrl + W** - delete from cursor to start of word (i.e. delete backwards one word)
- **Ctrl + Y** - paste word or text that was cut using one of the deletion shortcut after the cursor
- **Ctrl + XX** - move between start of command line and current cursor position (and back again)

Basic Commands & Their Usage

- **date** - displays the current time and date
- **cal** - displays a calendar of the current month
- **df** - displays the current amount of free space on our disk drives
- **free** - displays the amount of free memory
- **uname** - displays information about your system
- **clear** - clears the screen

Managing Software

Important to Know

- **Package** - archives that contain binaries of software, configuration files, and information about dependencies
- **Library** - reusable code that can be used by more than one function or program
- **Dependency** - software needed as a foundation for other software.
- **Repository** - a large collection of software available for download
- **The Debian Package Management System (DPMS)** - is the foundation for managing software on all Debian distributions
- **Advanced Package Tool (APT)** - is a set of tools for managing Debian packages.
 - Handles dependencies in software
 - Can do installation resuming
 - Can search for packages using a local cache of the available packages
 - Used for updating all the packages in the system

Command for Updating Ubuntu

- To Update any Debian distro:

sudo apt update

I Go it! Apt is cool ... but how do I use it?

- To update any Debian distro:

Update is used to download package information from all configured sources.

By terminating every command with a ; you can run multiple commands in a single line.

Managing software and updates requires root privileges. Sudo allows you to run any command as the root user.

Apt is the program that we are using to manage software and updates.

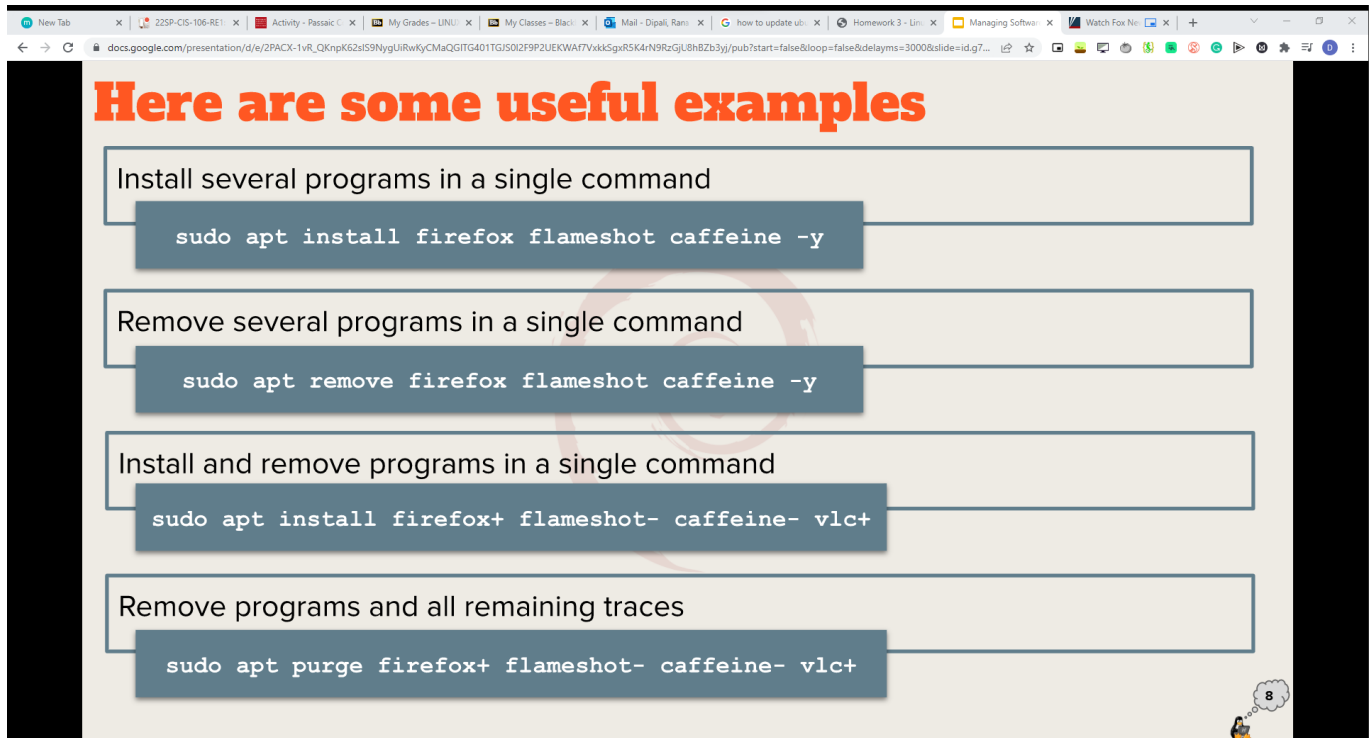
upgrade is used to install available upgrades of all packages currently installed on the system from the sources configured via sources.list

The -y option passes a yes answer to any question. Without this option apt will ask you if you want to install the upgrade. Using -y is optional and you should use it only if you are 100% sure about the upgrade.

```
19:57:51 (adrian@6752VL2 ~)
sudo apt update; sudo apt upgrade -y
```

Command for Installing Software & Removing Software

sudo apt install 'package name' sudo apt remove 'package name'



Here are some useful examples

Install several programs in a single command

```
sudo apt install firefox flameshot caffeine -y
```

Remove several programs in a single command

```
sudo apt remove firefox flameshot caffeine -y
```

Install and remove programs in a single command

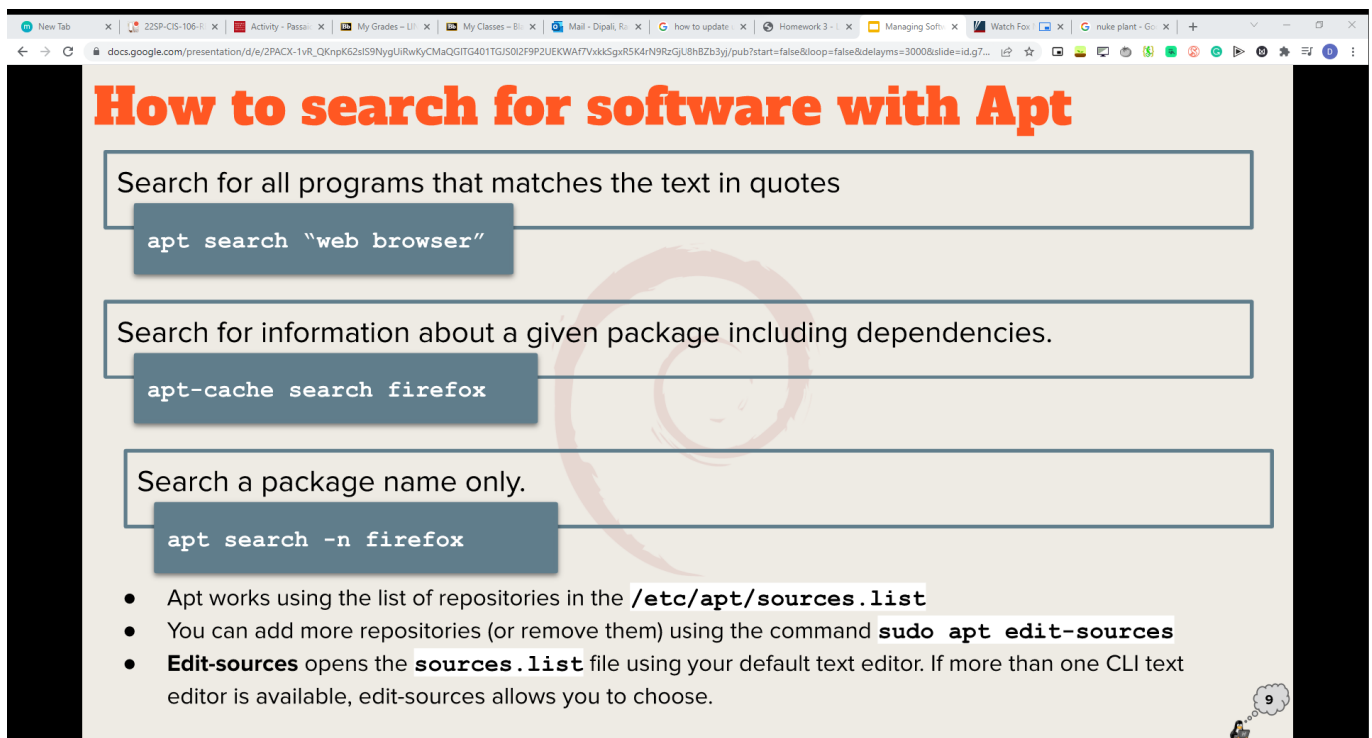
```
sudo apt install firefox+ flameshot- caffeine- vlc+
```

Remove programs and all remaining traces

```
sudo apt purge firefox+ flameshot- caffeine- vlc+
```

8

Command for Searching for Software



How to search for software with Apt

Search for all programs that matches the text in quotes

```
apt search "web browser"
```

Search for information about a given package including dependencies.

```
apt-cache search firefox
```

Search a package name only.

```
apt search -n firefox
```

- Apt works using the list of repositories in the `/etc/apt/sources.list`
- You can add more repositories (or remove them) using the command `sudo apt edit-sources`
- **Edit-sources** opens the `sources.list` file using your default text editor. If more than one CLI text editor is available, edit-sources allows you to choose.

9